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A Clinical Lecture
ON
CANCER OF THE STOMACH.

DELIVERED AT GUY'S HOSPITAL
BY

R. P. ROWLANDS, M.S., F.R.C.S.,
SURGEON TO THE HOSPITAL.

THE deaths from cancer of the stomach are rapidly increasing. In England and Wales there were 7,078 in 1919 and 8,135 in 1921. Very few of these patients ever come to the surgeon; many do not see a physician or even their general practitioner until it is too late to operate. This is partly due to the fact that gastric cancer is frequently a terminal disease in old people, for more die of this condition between the ages of 60 and 70 than in any other decade,[1] so that the early symptoms are often overlooked or thought to be the natural result of old age. Even when an early and correct diagnosis is made in these old people a radical operation is considered to be too formidable. There is also a very prevalent opinion among the public that cancer of the stomach is necessarily fatal, and that no operation can either cure or afford much relief. The majority of patients who see the physician or surgeon come so late that either no operation can be performed or the difficulty and mortality of operation are very great; at the best, in these late cases, the prolongation of life is short, with the natural result that the public get a bad impression of the operation.

Better education of the public and of the rank and file of the medical profession, leading to earlier diagnosis and operative treatment, would bring far better results. It should be made more generally known that both the immediate and the ultimate results of *early* operation are good: the immediate mortality should not be more than 10 per cent., and at least one-quarter of the patients should be alive and well five years after the operation. These operative results are satisfactory for a disease which has a 100 per cent. mortality under medical treatment. At present, out of teh cases which reach the surgeon, resection is only possible in two and gastro-jejunostomy for the relief of obstruction in three, the remainder being inoperable.

Many cases of cancer of the stomach could be prevented by earlier and better treatment of chronic gastric ulcer, which is the main precursor of gastric cancer. Sherren[2] and Moynihan[3] maintain that at least 50 per cent. of cancers of the stomach arise in chronic gastric ulcers, and find direct microscopic evidence that cancer started in an ulcer in one-quarter of the specimens of cancer removed at operation. Moreover, one-tenth (Moynihan) to one-twentieth (Sherren) of supposed chronic gastric ulcers removed by them showed evidence of early cancer. Pauchet[4] contends that as many as 75 per cent. of cancers of the stomach arise in simple ulcers. Others deny any direct relationship between gastric ulcer and gastric cancer, but it is significant that cancer attacks just those parts of the stomach which are subject to ulcers and that the clinical history of chronic or recurring gastric ulcer is obtainable in the majority of cases of cancer of the stomach. In this connexion MacCarty's[5] view is important.* He asks the practical question:

"Is cancer often associated with chronic gastric ulcer? From an experience of more than 1,400 gastric specimens I can state that the association is so frequent that if I had a chronic gastric ulcer I should always consider the possibility of cancer being present, and I know of no clinical or laboratory methods by which the differential clinical diagnosis can be made. From actual experience also I know that chronic gastric ulcers with a diameter greater than 2.5 cm. are cancerous. I do not know whether the cancer or the ulcer was primary, but I do know that I would not temporize with the chronic gastric ulcer."

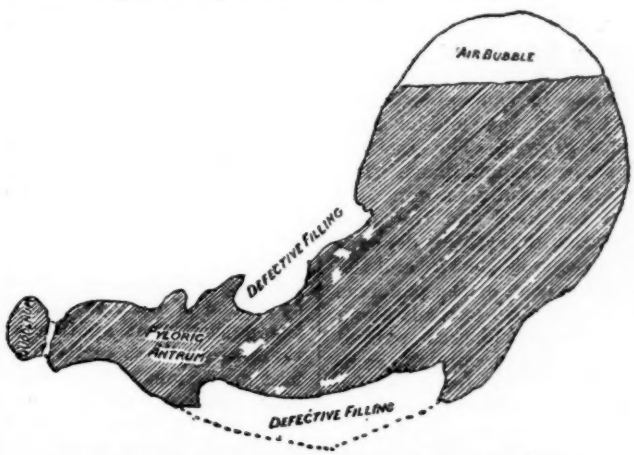


FIG. 1.—Case iii; copy of radiogram of stomach taken by Dr. Lindsay Locke.

SYMPTOMS.

Cancer of the stomach should be suspected in any patient, especially over 35 years of age, who suffers from obstinate dyspepsia with anorexia, wasting, anaemia, pain, vomiting (especially coffee-grounds), and achlorhydria. It should be remembered, however, that not more than 50 per cent. of early cancers of the stomach show achlorhydria, and that in over 25 per cent. free hydrochloric acid is either normal or excessive.

DIAGNOSIS.

When cancer of the stomach is suspected it is of the greatest importance to settle the diagnosis without delay, and, with this object, every useful examination should at once be made; a fortnight is ample time for every investigation to be completed. The most reliable help is afforded by *x*-ray examinations by an expert. Persistent delay, defective filling, and distortion of the shadow are practically conclusive. (Fig. 1.) Carman maintains that he can make a correct diagnosis by *x* rays in over 96 per cent. of the cases submitted to him, but I have not found the *x*-ray reports so accurate as this. Further, Carman and MacCarty state that if an ulcer has a crater of over 2.5 cm. it is almost certain to be malignant. This is a valuable observation, but it is not entirely reliable, for I have excised several larger chronic gastric ulcers which were proved by subsequent microscopic examination to be innocent. In doubtful cases it is important to take a Wassermann reaction in order to exclude syphilis of the stomach, although this is a very rare disease. There is some danger of mistaking pernicious anaemia for cancer of the stomach, but the characteristic changes in the blood in the former condition should prevent this mistake.

Carcinoma of the body of the pancreas presents difficulties, for this condition, unlike the same disease in the head of the pancreas, does not cause jaundice. The patient has much pain, wastes rapidly, and is anaemic. Negative *x*-ray examinations and the absence of blood in the gastric juice or in the faeces should generally prevent this mistake. As already pointed out, it is quite impossible in many cases to distinguish between chronic ulcer and carcinoma of the stomach without microscopic section.

INDICATIONS FOR OPERATION.

When all available methods of examination have been exhausted without settling the diagnosis an exploration of the abdomen is necessary if cancer of the stomach is to be found and treated in its hopeful stages, and this exploration should be resorted to without delay. When cancer is excluded by exploration some other disease is generally found, such as peptic ulcer or cholelithiasis, which can be best treated surgically. Negative explorations for late cases are to be avoided, whenever possible, for they carry a high mortality, chiefly from pulmonary complications. The following points indicate that an exploration is useless.

1. Bad general condition. When the general condition of the patient is so poor that he cannot be expected to stand a major operation, such as partial gastrectomy, it is a pity to submit him to an exploration, but his health may be greatly improved by careful dieting, rest, gastric lavage, and sometimes by blood transfusion before operation. In some cases a preliminary short-circuit for pyloric obstruction has the same beneficent effect, allowing a resection to be carried out at a later date (see Case ii).

2. Evidence of secondary growths. It is useless to explore a patient when hard enlarged glands are felt, especially

at the root of the neck, or when secondary growths are felt in the pelvic peritoneum on rectal or vaginal examination. Any nodules at the umbilicus, in the liver, or anywhere in the abdomen, especially with ascites, are strong contra-indications to exploration.

3. Size, position, and fixation of the growth. A palpable tumour is by no means a contraindication to resection, for even a simple gastric ulcer may sometimes be felt in a thin abdomen; but the size and position of the tumour are most important, for if it is large, and particularly if it extends upwards under the left costal margin or starts in the cardiac part of the stomach, resection is not likely to be practicable. Fixation of the tumour is also very important, for if it cannot be moved from above downwards and from side to side resection is impossible. Accurate radiographic examinations give valuable help by indicating the site and extent of the growth as well as the size and capacity of the healthy part of the stomach.

As regards gastro-jejunostomy for cancer, it is generally admitted that this is of no use and should not be performed unless there is definite obstruction. In these circumstances it is a humane operation, prolonging life and making death less terrible. It does not often prolong life for more than six months, although I have known a few patients survive for two or three years in comparative comfort.

Operation.

This commences as an exploration to establish or complete the diagnosis and to determine the proper treatment. A long paramedian incision is made in the epigastrium, either to the right or to the left of the middle line, according to the position of the growth. The incision extends from the costal angle to below the umbilicus. The growth, glands, and peritoneum are carefully examined to see if resection is practicable. If the liver and the peritoneum are free of secondary growths, everything depends upon the extent and fixation of the primary growth and the presence of secondary glands about the head of the pancreas and the coeliac axis. If the primary growth extends along the lesser curvature nearly to the oesophagus partial gastrectomy will be of no avail, and, in my opinion, complete gastrectomy is hardly ever worth doing, for it carries a very high mortality and is generally followed by rapid recurrence. Those who survive it for any length of time without recurrence develop an intractable form of anaemia simulating Addison's (pernicious) anaemia. Considerable invasion of the pancreas is generally a contraindication to resection; involvement of the transverse colon or of its mesentery is not so serious, for these parts can be resected with justifiable additional risk.

Choice of Operation.

This depends upon the site and extent of the growth. In many cases it is necessary to remove the pylorus and from one-quarter to one-half of the stomach. After extensive resections direct union of the stomach and duodenum, after Billroth's first method, is impracticable without undue tension. Therefore the duodenum is closed and the side of the jejunum is anastomosed directly to the cardiac remainder, after Polya's method. It is better to place the loop of jejunum in front of the transverse colon, after Balfour's method,[6] for if recurrence takes place, as it often does about the pancreas and transverse mesocolon, obstruction of the anastomosis is not so likely when this method is used. (Fig. 2.)

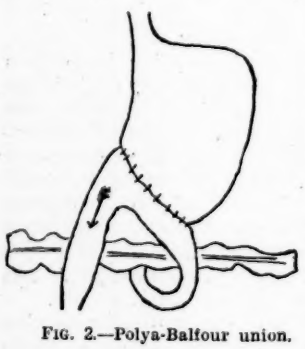


FIG. 2.—Polya-Balfour union.

When the primary growth is small Billroth's first method is an excellent one, especially if it is carried out after W. J. Mayo's plan.[7] Mayo mobilizes the lesser curvature, removes the whole of the gastro-hepatic omentum with its contained glands and a considerable part of the lesser curvature of the stomach, along which the growth so often spreads. He also points out that the intramural spread rarely extends more than 3 cm. from the edge of the primary growth, and that it is not necessary to resect the stomach so widely as has so often been done, provided that the lymphatic vessels and glands are extensively removed. The wound in the stomach is sutured along the lesser curvature, so that the diameter of the opening left is not appreciably larger than that of the duodenum. With modern methods of suture the danger of leakage at the "angle" is negligible. (Fig. 3.)

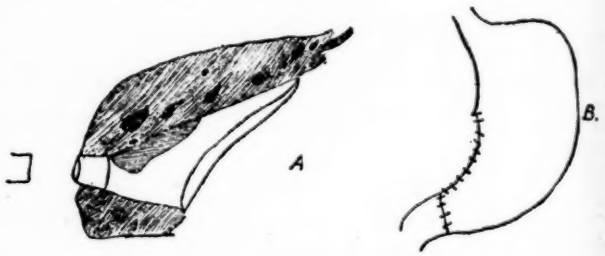


FIG. 3.—Billroth No. 1, modified by W. J. Mayo. A, Part removed. B, Method of union.

When the growth is in the mid-gastric area and is not too extensive, sleeve resection, with wide removal of the lymphatic glands, is indicated, and both the immediate and ultimate results of this operation compare favourably with those of other forms of resection.

Operation in Two Stages.

In some feeble and old patients, and especially in those suffering from severe pyloric obstruction with vomiting and rapid wasting, it is sometimes necessary and wise to perform the operation in two stages, and, in these circumstances, a preliminary gastro-jejunostomy, well to the left of the growth, is indicated. The improvement that follows this operation is often so marked that it is difficult to persuade the patient that another operation is necessary, and it is therefore well to explain the plan of procedure before the first operation. Secondary resection of the growth is sometimes made somewhat more difficult by the previous gastro-jejunostomy, which limits the mobility of the stomach and sometimes makes it difficult to divide the latter far enough away from the growth. When this has been removed the openings in the jejunum and stomach are closed, and the anatomy of the parts is like that of Billroth's second method, which is rarely performed as a primary operation nowadays because it is unnecessarily complicated and prolonged as compared with the Polya-Balfour method.

The following three cases may serve to illustrate some of the points of this lecture. They afford striking contrasts: the first, an early case operated on with complete success, the patient being well nine and a half years after partial gastrectomy; the second, a late case with severe anaemia, calling for preliminary short-circuit and secondary resection; and the third, a very late case, beyond resection, who survived anterior gastro-jejunostomy for only a few days.

Case I.

Mrs. E., aged 41, a patient of Dr. Brackenbury. She had suffered increasingly from indigestion for three years. Recently she had haematemesis and had wasted rapidly. She often vomited large quantities. Radiography revealed pyloric obstruction. I had felt a tumour of moderate size in the epigastrium a little to the right of the middle line. The patient looked ill and anaemic, was vomiting large quantities about once a day, and was unable to take more than liquids. I therefore advised operation.

Operation on August 21st, 1915 (Dr. Brackenbury present).—A long incision was made in the epigastrium to the right of the middle line. A dilated stomach, hypertrophied and oedematous, was found, and a pyloric ulcer of large size extending half-way along the lesser curvature from the pylorus, around which it formed a ring which was hard and felt like carcinoma. As the stomach was particularly movable and there were no growths in the liver, pelvic peritoneum, or glands, I decided to resect the diseased part, and this was done without delay. The gastric artery was double ligatured and divided, the left gastro-epiploic also, then the great omentum close to the transverse colon, and the right gastro-epiploic and pyloric arteries. The duodenum was crushed one inch beyond the pylorus and sealed with a running suture of linen thread and then invaginated by two purse-strings

of the same material. A loop of jejunum was brought up through the transverse mesocolon and sewn to the back wall of the stomach along a selected line, a little on the cardiac side of the middle of the stomach. Thick black thread was used. The stomach was divided near the line already mentioned between two clamps so that no leakage occurred. An opening the same size as the one in the stomach was made in the jejunum and an anastomosis made as in gastro-jejunostomy, black thread being used throughout. The sewing of the jejunum to the stomach before the growth was removed greatly facilitated the operation, for the growth was useful as a tractor, and later on the attachment to the jejunum prevented retraction of the stomach during the insertion of deep sutures. The opening in the jejunum began four inches from the end of the duodenum, and by starting it here there was no tension upon the first part of the jejunum and duodenum. Only two layers of sutures were used for anastomosis. The great omentum was not removed but drawn up over the anastomosis and the stump of the duodenum. The opening in the transverse mesocolon was closed by two interrupted sutures. The operation lasted forty-five minutes and the patient was not shocked after it. She was infused during the operation, two pints being run into the armpits.

She was very well the next day, but vomited once or twice. On August 23rd she frequently vomited small quantities of offensive green material, and, as half a pint of sodium bicarbonate solution was given without affording any great relief, the stomach was washed out at 5 p.m A very large quantity of bilious liquid was withdrawn and the patient felt much better. She was up on the tenth day, and walking about on the thirteenth and eating almost full diet. She rapidly gained weight and did very well. When last heard of, in December, 1924 (ten years later), she was still in excellent health.

CASE II.

A man, aged 64, had had gastric symptoms for years, with some melaena. When admitted to Guy's Hospital he was thin and very anaemic. He was sent up with the diagnosis of duodenal ulcer, but the diagnosis in hospital was carcinoma of the pylorus, with obstruction.

Operation on May 25th, 1922.—Dr. E. A. Scott, the anaesthetist, considered that he would not stand a long anaesthetic and operation owing to his anaemic and bad condition. I therefore performed posterior gastro-jejunostomy well away from a definite pyloric carcinoma, the size of a Tangerine orange, completely encircling the pylorus, ulcerated, hard, and at one side piercing the muscle wall of the stomach and showing peritoneal nodules. There were no secondary growths anywhere, and partial gastrectomy was thought advisable (possibly after blood transfusion) three to four weeks later. However, the patient improved so much that blood transfusion was not necessary before the second operation, which was performed on July 10th, 1922, when about half the stomach was removed. The growth proved to be a columnar-celled carcinoma. Good recovery followed, and when last heard of (January, 1925) he was in excellent health, less anaemic, and better nourished, and in regular work, cleaning cars.

CASE III.

Mr. G., aged 65, after suffering from severe chronic gastritis for three months, was sent by his medical attendant to see a consulting physician, who, instead of a thorough investigation, advised a three months' holiday in Devonshire. After two months the patient returned to London because he was wasting and vomiting so much. Investigation at New Lodge Clinic demonstrated defective filling of the middle of the stomach and complete absence of hydrochloric acid, with much blood in the gastric juice. There was a movable tumour in the left epigastric angle. Laparotomy was advised in the hope that partial gastrectomy would be possible, but the site and extent of the growth made me take a gloomy view of the case. The patient asked for another radiographic examination, and this was done by Dr. Lindsay Locke, confirming the New Lodge findings. I hoped that a mid-gastric sleeve resection would be possible.

Operation on November 2nd, 1922.—A large carcinoma was found in the lower mid-gastric region. It encircled the stomach and markedly constricted it, leaving only a narrow vertical slit. The cardiac pouch was considerably dilated, and its anterior wall folded forwards and to the right in front of the stricture. There were enlarged glands on the lesser curvature, and also below the greater curvature where the growth had come through the peritoneum of the stomach and had infected the general peritoneum, there being many minute nodules all over it, especially in the pelvis. There were also larger lumps in the great omentum, but no secondary growths in the liver. The primary growth could have been removed, but the secondaries negatived resection. Complete obstruction was clearly impending, therefore an anterior gastro-jejunostomy (beginning in the jejunum ten inches down) was performed, the posterior operation being impossible owing to the position of the growth. Death occurred from bronchitis with exhaustion a week later.

REFERENCES.

[1] Registrar-General's Report, 1921. [2] Sherren, J.: *Lancet*, 1920, i, 691. [3] Moynihan, Sir B.: BRITISH MEDICAL JOURNAL, 1920, ii, 100. [4] Pauchet, V.: *Presse Médicale*, 1920, November 6th, p. 193. [5] MacCarty, W. C.: *Collected Papers of the Mayo Clinic*, 1922, xiv, 95. [6] Mayo, C. H.: *Ann. Surg.*, 1919, lxx, 237; and *Collected Papers of the Mayo Clinic*, 1919, xi, 41. [7] Mayo, W. J.: *Collected Papers of the Mayo Clinic*, 1922, xiv, 84

THE PREVENTION OF PUERPERAL MORBIDITY AND MORTALITY:

*AN EXPERIMENTAL STUDY IN CLINICAL OBSTETRICS.**

BY

FRANCES IVENS, M.S.,

CLINICAL LECTURER IN OBSTETRICS AND GYNAECOLOGY, UNIVERSITY OF LIVERPOOL; HONORARY SURGEON, LIVERPOOL MATERNITY HOSPITAL; HONORARY GYNAECOLOGICAL SURGEON, LIVERPOOL STANLEY HOSPITAL.

IN this paper I propose to give a short account of a series of consecutive midwifery cases which have occurred under my own general supervision in a municipal maternity home. I do so because I am of opinion that it is only by a detailed study of so-called normal labour, and of the slighter cases of puerperal morbidity, that we shall arrive at a full knowledge of the etiology of puerperal sepsis and the explanation of the terrible cases of fulminant puerperal septicaemia occurring after an apparently normal labour. When in possession of that knowledge we may hope to formulate a scheme to eliminate some of the dangers of maternity, and to decide upon a reasonable technique for the actual conduct of labour.

No one can have read the recent correspondence in the BRITISH MEDICAL JOURNAL without being struck by the great diversity of opinion expressed both with regard to the lack of improvement in puerperal statistics and the apportionment of blame for such a deplorable condition of affairs. Recently the published statistics of a practitioner[1] throw a doubt on the reliability of the statistics on which these statements are made—and I think he is probably right.

I do not think it can be denied, however, that even if puerperal mortality has really diminished there is still a vast amount of ill health among women of the poorer and middle classes which is the result of the traumata of labour, of sepsis, or of infection present in the patient before parturition. For a good many years I have been interested in this subject from a gynaecological standpoint, and it occurred to me that it would be both interesting and useful to make observations from the obstetrical side to determine how far these results were inevitable, or, if preventable, how they could be prevented. Accordingly I undertook, at the invitation of Dr. Hope, then medical officer of health for Liverpool, the supervision of the new maternity home which was started on his initiative, and which the lack of housing accommodation after the war made so necessary.

The home is small; it can take in only fourteen patients; but since its opening in 1920 1,000 women have been admitted. It was arranged that I should see, as far as possible, every case before admission, and I attended a weekly clinic at the home when women desiring admission presented themselves for examination.

After notes of the case had been taken and the urine tested, I examined each patient, measured the pelvis, and made an internal examination to determine the diagonal conjugate. A specimen of any abnormal discharge was sent to the city bacteriologist for report. Cases of active syphilis or gonorrhoea were referred to a special institution, as the size of the home did not permit of satisfactory isolation. Cases of albuminuria, cardiac disease, or hyperemesis were admitted for ante-natal care, and abnormal cases were kept under regular observation so that the obstetrical treatment required might be carried out at the proper time. The home was well equipped for simple cases, but any requiring Caesarean section were sent to the Stanley or Maternity Hospital, either before labour or when it had started. Each case was as far as possible admitted a day or two before the anticipated date of delivery.

On admission, after a preliminary abdominal examination has been made by the matron or sister, the regulation bath is given and a dose of castor oil and an enema. Before any internal examination is made the vulva is shaved and washed very thoroughly with lysol solution

* Read at a meeting of the London Association of the Medical Women's Federation. A brief abstract was published in the BRITISH MEDICAL JOURNAL of March 7th (p. 450).

(1 in 320) over a douche-pan. In emergency cases tincture of iodine is also used.

During labour all those concerned with the case, including the pupil midwives (who are trained nurses), wear sterilized overalls and boiled gloves. Sterile towels are used, and great care is taken to avoid infection from the anus, especially in multigravidae where the perineum has been ruptured or where prolapsed or inflamed haemorrhoids are present.

The matron or sister conducts all normal cases, with the assistance of the pupil midwives, and reports any abnormality that has been discovered during ante-natal examination or that is discovered on admission. Should the case be not proceeding normally they are asked to send for assistance in good time, and where there is slight contraction of the outlet or uterine inertia and the second stage is unduly prolonged, forceps are not withheld if required. If perineal rupture takes place it is repaired at the earliest possible moment, silkworm gut being used. Catgut is avoided as being too favourable a culture medium.

During the puerperium the vulva is swabbed with lysol solution over a douche-pan (each patient has one for her own use) every four hours during the day, and a large sterile pad applied to absorb all lochial discharge. If the perineum is ruptured the wound is kept specially dry, and is touched once a day with tincture of iodine.

To help involution and to avoid a collection of lochia in the posterior fornix, the patient is encouraged to lie on her side part of every day, and to sleep in an exaggerated Sims's position, which is not uncomfortable. Anteversion of the uterus is thus encouraged. In cases of ruptured perineum micturition is performed on the hands and knees, so that the wound is not soiled and catheterization is avoided.

The following is an analysis of the 1,000 patients admitted since the home was opened:

Pre-maternity cases		206
Maternity cases—		
Primiparae	390	679
Multiparae	289	
Post-natal cases		115

I propose to discuss in this paper the maternity cases only.

MATERNAL MORTALITY AND MORBIDITY.

There has been no maternal mortality and no maternal morbidity (under Central Midwives Board rule) among the cases delivered in the home. I shall deal in detail later with the few cases which have shown any slight deviation from the normal, and their causation as far as it could be traced.

Contracted Pelvis.

Contracted pelvis was present in 130 cases: in 92 of the 390 primiparae (23 per cent.) and in 38 of the 289 multiparae (13 per cent.).

Primiparae.—The rather high percentage of contracted pelvis in primigravidae is probably due to the fact that a proportion of the cases are referred from outside clinics, doctors, and midwives for special observation and care. Of the 92 cases in primigravidae—

1. Natural delivery took place in 36, with 35 living children. The dead child was a pelvic presentation; the mother had slight contraction of the pelvis.
2. Forceps were employed in 17, with 16 living children. The child born dead weighed 9 lb. 8 oz.; presentation right occipito-posterior; slight contraction. The size of the child was not discovered sufficiently early to permit of Caesarean section.
3. There was induction of premature labour in 17, with 16 living children. The mother of the dead child suffered from morbus cordis, which was followed by puerperal insanity.
4. Caesarean section was performed in 18, with 18 living children.

Multiparae.—Of the 38 cases of contracted pelvis in multigravidae—

1. Natural delivery took place in 16, with 16 living children.
2. Forceps were employed in 3, with 3 living children.
3. Premature labour was induced in 16, with 16 living children.
4. Caesarean section was performed in 3, with 3 living children.

Of the total 679 maternity cases natural delivery took place in 601 (88 per cent.).

Table showing Proportion of Contracted Pelves in 679 Maternity Cases.

	Primiparae.	Multiparae.	Total Cases.
Normal measurements ...	298	251	549
Contracted pelvis ...	92 (23 %)	38 (13 %)	130
Total	390	289	679

Complications.

Post-partum Haemorrhage.—Three severe and two slight cases occurred; all survived. The treatment employed was massage of the uterus and pituitrin and ergotin injections. Occasionally a hot intrauterine douche was used.

Adherent Placenta.—Manual removal of the placenta was required seven times, but [illegible]s in no case followed by pyrexia.

Perineal tears of vary[illegible] degree occurred in 78 cases of normal labour and 20 [illegible]ceps cases. Primary union was almost invariable, and there was no pyrexia. Small tears were stitched.

Fibromyomata.—In two cases labour was complicated by the presence of fibromyomata, but progressed normally. In one case the tumours were enucleated three weeks later and were then found to be undergoing necrobiosis.

Twin Births.—Eight pairs of twins occurred, of which four were in primiparae. All the children but two lived—one a pelvic presentation in a primigravida, and the other a vertex with tight short cord. Locked twins occurred once. Considerable delay took place in the second stage. Under anaesthesia one twin was found to be presenting by the vertex with its neck stretched across the neck of the other, which lay transversely. The transverse twin was dislodged and pushed up, and the first delivered by forceps. The other then presented by the vertex and was also delivered by forceps. Both were born alive and survived; one weighed 5 lb. 12 oz., and the other 4 lb. 14 oz.

Occipito-posterior Position.—Eighteen cases of unreduced occipito-posterior position occurred; 9 were delivered by natural forces, 3 by forceps after manual rotation, and 6 by forceps. In one, an elderly primigravida with rigid cervix and slightly contracted pelvis, Caesarean section was performed. All the children were born alive, except in the one instance of large child and contracted pelvis already mentioned.

Placenta Praevia.—Eight cases occurred—2 central, 6 marginal. Two cases of central placenta praevia were delivered by Caesarean section in the Stanley Hospital. Both children were premature; one, though weighing only 3 lb. 11 oz., survived; the other died after a few hours. One multigravida with vertex presentation was treated by rupture of the membranes and full doses of pituitrin. The child was stillborn. The remainder were delivered by natural forces of living children.

Prolapse of cord occurred twice. In the first case the cord was prolapsed and feebly pulsating on admission. Reposition was effected, but the child was stillborn. The second instance occurred with a pelvic presentation.

Pelvic Presentations.—There were 23 cases. In 14 the child was born alive; in 5 the child was premature; in one primigravida with slight contraction the child died during delivery; in one primigravida with large child the infant was stillborn; one (a monstrosity with included twin) died five days after birth; in one primigravida the first twin was stillborn. Caesarean section was performed for two primigravidae with contracted pelves. Both children were born alive, but one had congenital deformity of both arms (absence of the radius).

Face Presentation.—This occurred twice. One case was born alive by natural forces. One (an anencephalic monster) was stillborn.

Eclampsia.—Although a considerable number of cases of albuminuria were treated, no case developed eclampsia. One case of eclampsia was sent in as an emergency and had had no ante-natal treatment. She was admitted in labour, comatose, with swelling of legs, 7 grams of albumin per litre, and several fits had occurred. One fit took place after admission. Delivery was effected naturally, but the

child was stillborn. The first child had died of convulsions at 8 months. The mother made a good recovery, and when seen three years later the urine was normal.

Induction of Premature Labour.

Three methods have been employed—namely, quinine and castor oil (25), gum-elastic bougies (6), and toy rubber balloons (17). The first method was found to be unreliable, although it occasionally was successful where the child was post-mature. Bougies were discarded partly on account of their slow and uncertain action, partly on account of the risk of carrying vaginal organisms into the upper segment, of rupturing the membranes, or of causing retroplacental haemorrhage. (During bougie induction in one case slight haemorrhage occurred. Labour did not come on, and the patient was delivered three weeks later by Caesarean section. A large retroplacental haematoma was present.) The balloon method was brought to my notice by Professor Lowry of Belfast. A general anaesthetic is employed. The vagina is douched with 1 in 2,000 mercury biniodide lotion, and the uninflated balloon introduced through the cervix, which is fixed by means of modified Collins's lung forceps; 16 oz. of sterile water are introduced with a syringe through tubing tied on a glass tube in the neck of the balloon.

The indication for an induction was usually some disproportion between pelvis and child. There were 17 cases, with 17 living children (one—a first twin in a primigravida—being stillborn owing to some delay with the after-coming head). The average gestation period was thirty-eight weeks, and the average weight of the children 6 lb. 13 oz.

Two cases required forceps—one a right occipito-posterior presentation with long second stage, and the other (a second twin) for uterine inertia. In the third case, induced because of post-mature child and slight contraction, the induction was delayed because of the history of septicaemia in the first confinement and risk of latent sepsis. The patient was removed to hospital, and high forceps were used. The child weighed 9 lb. 8 oz. and was delivered alive. Streptococci were isolated from the urine of the mother (Case v).

In two cases Caesarean section was required—the first a pelvic presentation in a primigravida with diagonal conjugate of 4½ inches; the second a multigravida of 42, who had had four forceps deliveries and one previous induction with a living child of 7 lb. 4 oz.

Forceps Delivery.

Delivery by forceps was effected in 30 cases (4.4 per cent.): in 20 for contracted pelvis (of which 8 were posterior positions); in 3 for cardiac disease; twice for twins, and the remainder for uterine inertia. Low forceps were employed in all but three cases of mid-forceps and the one case of high forceps already mentioned. Contraction of the outlet was noted in 8 cases. The children were all born alive, except the large child in posterior position already referred to. In one cardiac case the premature infant died four hours after delivery.

Caesarean Section.

Caesarean section was performed in 29 cases: for contracted pelvis in 21; for central placenta praevia in 2; for pre-eclamptic conditions in 3; for rigid cervix in 2; and for grave cardiac disease in 1. These cases were removed, either before or during labour, to the Stanley or Maternity Hospital, and operated upon by myself in 25 cases, in 3 cases by Miss Nicholson, M.S., and in 1 case by Mrs. Dobbin Crawford. The mothers all survived, and the children were born alive.

Three neo-natal deaths took place: (1) premature (placenta praevia); (2) premature (pre-eclamptic) on fifth day; (3) spina bifida on fifth day. In 24 cases the puerperium was afebrile and healing was by primary union. In 5 the puerperium was febrile.

Infant Mortality.

Thirty-nine infants were stillborn or died in the first ten days; 22 of these were premature.

Ante-natal death occurred in 12—prematurity 8, syphilis 1, anencephalic monster 1, spina bifida 1, cause unknown 1.

Intra-natal death occurred in 18; 8 were due to prematurity, and the following conditions were responsible for one each—placenta praevia, impacted shoulders, left occipito-posterior presentation with contracted pelvis and large child, achondroplasia, breech presentation with large child, toxaemia of pregnancy, breech presentation with contracted pelvis, twin (tight cord), breech presentation (primigravida), spina bifida.

Neo-natal death occurred in 9—prematurity 6, congenital heart 1, monster (included twin) 1, pemphigus 1.

Infant Morbidity.

There were 7 cases of pemphigus—one (premature, ? syphilitic) died; 3 cases of gonorrhoeal ophthalmia—all recovered; 1 case of congenital blindness; and 8 cases of inflammation of the eyes.

MORBIDITY.

Although no cases in the home itself have reached the Central Midwives Board standard of morbidity, some slight deviations from the normal have occurred. In 5 out of the 29 Caesarean sections, and in one case of high forceps with latent streptococcal infection, there was morbidity (Central Midwives Board).

Latent Gonorrhoea.

CASE I.—A primigravida had been under treatment for gonorrhoea and syphilis in a venereal diseases clinic. Before admission to the maternity home discharge had ceased for some weeks. A normal confinement took place. On the fifth day a rigor occurred; temperature 102.8°, pulse 120. The patient was anaesthetized and the uterus explored. A little membrane was removed; 20 c.cm. of antigonococcal serum was given subcutaneously, together with 10 c.cm. of antistreptococcal serum as a prophylactic against a possible secondary infection. Gonococci only were found in the uterine discharge. Temperature and pulse dropped to normal, and the patient made a good recovery.

CASE II.—A primigravida, single, a dwarf. There had been a vaginal discharge during pregnancy, but no gonococci found. Caesarean section was performed (S.H.). The temperature reached 101° for the first few days and discharge was profuse. Gonorrhoea suspected.

CASE III.—A primigravida with a definite history of gonorrhoea and syphilis. Normal pelvis. In labour four days, with ruptured membranes twenty-four hours. The head was well in the pelvis, but the cervix did not dilate. Caesarean section was performed. The liquor amnii was discoloured and there was difficulty in removing the child, which was tightly gripped by the uterus. The membranes and placenta were yellow and unhealthy-looking. Drainage was employed. At the operation 20 c.cm. of antigonococcal serum and 10 c.cm. of antistreptococcal serum were given subcutaneously in saline. The wound was not healthy, but there was no rise of temperature. Gonococci had been found. In this case there is little doubt that the gonorrhoeal infection caused the rigid cervix.

CASE IV.—Primigravida. Husband seafaring man. Normal antenatal history except for prolapsed haemorrhoids. Normal confinement. Rigor on the ninth day, associated with pain in the right side. Some yellow discharge noted. Intracellular Gram-negative cocci present in pus. Mercurial vaginal douche. No further trouble.

Latent Streptococcal Infection.

CASE V.—A 2-gravida, aged 33. First child stillborn; forceps delivery, followed by septicaemia. She was an unhealthy-looking stout woman with some oedema of the ankles. Diagonal conjugate 4½ in. There had been an occasional trace of albumin during pregnancy. Perineum torn to anus. Induction was delayed on account of a history of septicaemia. When fourteen days overdue balloon induction was employed, as Caesarean section was contraindicated and the child large. The head remained high and pains went off. She was transferred to the Maternity Hospital. Pulse 132; haemorrhagic vomiting. A living child of 9 lb. 8 oz. was delivered with Tarnier's axis-traction forceps. Some post-partum haemorrhage was controlled by pituitrin. Offensive lochia and raised temperature followed delivery. Streptococci were isolated from the urine. She was given 20 c.cm. of antistreptococcal serum, and made a good recovery.

In this case it is probable that streptococci were present in the bladder during pregnancy and accounted for the albuminuria. No vaginal discharge had been noted.

CASE VI.—A primigravida, aged 25. In this case albuminuria occurred at intervals during pregnancy, and some vaginal discharge was present. A specimen taken before delivery showed short chains of streptococci. Owing to uterine inertia, low forceps were employed for delivery, followed by mercurial douche. There was an afebrile puerperium.

CASE VII.—A 2-gravida, aged 31, with a previous history of prolonged labour with a large child, septicaemia, and white leg. She had had three attacks of appendicitis eight years before, but no operation. There was a trace of albumin in the urine during pregnancy. Labour was normal. On the seventh day she had

shivering and headache; temperature 101.6°, pulse 120. Streptococci in lochial discharge. She was given an intrauterine mercurial douche. The puerperium was normal.

Latent Infection with B. coli.

CASE VIII.—A primigravida with a rickety flat pelvis. Diagonal conjugate 4½ in. *Coli* bacilluria during pregnancy. The head did not fix. Caesarean section was performed and a child weighing 7 lb. delivered. The membranes were yellow and unhealthy. Some temperature during the puerperium with pyuria and unhealthy wound. *B. coli* isolated from urine and cervical discharge.

CASE IX.—A married woman, aged 28; one previous abortion. Diagonal conjugate 4½ in. Occasional albuminuria during pregnancy. In labour twenty-four hours with ruptured membranes. Head above brim; liquor amnii offensive; cervix rigid. Temperature 103°, pulse 104. Caesarean section performed; placenta adherent; drainage. Infant (7 lb. 10 oz.) blue from asphyxia. On the following day the infant had blebs on the fingers and vaginal discharge. Febrile puerperium; rigor on the fifth day. *B. coli* septicaemia. Anticoli serum, 20 c.cm., given subcutaneously in saline. The patient recovered.

In this case, unfortunately, the cause of the albuminuria during pregnancy was not investigated. It is possible that a latent bacilluria was present.

Coli Infection.

CASE X.—A primigravida, aged 25. Diagonal conjugate 4¼ in. Head entering pelvis. Membranes ruptured forty-eight hours. Liquor amnii discoloured. Cervix one-third dilated. It was decided to do Caesarean section. A child weighing 6¾ lb. was delivered; its head was much moulded. The patient was cyanosed and vomited haemorrhagic fluid in large quantities during the operation. The placenta and membranes were yellowish-green and adherent. The following day the infant's eyes were reddened and vulvitis was present. The mother's condition was serious. She had acute bronchitis with cyanosis, frothy sputum, and incontinence of urine and faeces. The pulse was very rapid and out of proportion to the temperature. Coliform organisms were present in the vaginal discharge. Anticoli serum, 10 c.cm., was given subcutaneously and she made a good recovery.

In this case it is probable that a *B. coli* infection from the rectum supervened during the prolonged labour with ruptured membranes. In one other case there was some morbidity, and the value of a few days' preliminary care in the home was demonstrated.

CASE XI.—A primigravida had been examined at the clinic and slight general contraction found, but it was thought that she would probably deliver herself. She came up in labour a few days before the expected date, the head above the brim. The membranes ruptured, but the head did not fix. Temperature 99.8°, pulse 100. The cervix was half dilated. Caesarean section was performed, and a living child, weighing 8 lb., was removed. The placenta was separated with difficulty. Post-operative bronchitis with rapid pulse and slight temperature occurred. Streptococci were found in the lochial discharge. The patient, however, made a good recovery.

In connexion with cases admitted in labour, the statistics of v. Buben[2] on the association of premature rupture of the membranes and diseases of the puerperium with marital relations shortly before labour need consideration.

CONCLUSIONS.

From such a small number of cases it is unwise to draw any definite conclusions. I am of opinion, however:

1. That latent or pre-existing infection, streptococcal, gonorrhoeal, or coliform, is responsible for a considerable percentage of cases of puerperal sepsis. That the organism may not infrequently be isolated by bacteriological examination of the urine during pregnancy, especially in cases of streptococcal or coliform infection. That intermittent albuminuria during pregnancy is an indication for a bacteriological examination of the urine, even in the absence of urinary symptoms. That with latent infection uterine inertia is more likely to occur, especially when associated with premature rupture of the membranes. That bacteriological facilities for the examination of discharges during pregnancy, if utilized, will enable suitable precautions to be taken and an appropriate serum to be obtained.

2. That for the prevention of puerperal sepsis cases should be removed from unsuitable surroundings, especially when difficulty is anticipated, and that ample accommodation should be arranged so that patients may be admitted a day or two before labour is anticipated.

3. That a rigidly aseptic technique is as important as for a surgical operation. The patient should be carefully prepared and the vulva shaved before any vaginal examination is made during or immediately before labour. That well trained midwives can deliver a very high percentage of maternity cases if satisfactory ante-natal examination and care have been given by the patient's doctor, and if skilled medical help, and, if necessary, institutional treatment, can be obtained when required. Co-operation between midwives and doctors should be aimed at, and maternity homes should be worked in conjunction with hospitals where expert ante-natal and obstetrical treatment can be obtained.

4. That with a reliable technique in good surroundings operative measures need not cause puerperal sepsis.

5. That in view of the need for study of the origin and character of the infecting organism in cases of fulminating puerperal fever, such cases should be placed at the earliest possible moment under the care of an obstetrical specialist and bacteriologist with facilities for research on the special type of organism.

In conclusion, I wish to thank Dr. Hope and Dr. Mussen for the extensive facilities they have afforded me; Miss Nicholson, M.S., who has assisted me indefatigably throughout; Professor Beattie and Dr. Ashcroft for their bacteriological reports; Dr. Capon and Mrs. Barton Hall for investigating most of the cases of stillbirth; and the matron, Miss Nicholson (Central Midwives Board), and Sister McCaughey (Central Midwives Board) for their invaluable and enthusiastic co-operation.

REFERENCES.

[1] Douglas: *Journ. Obstet. and Gynaecol.*, vol. 31, No. 4. [2] *Zentralbl. f. Gynäk.*, No. 23, June 7th, 1924.

FIBROCHONDROMA OF THE CAUDA EQUINA.

BY

F. L. A. GREAVES, O.B.E., F.R.C.S.ENG.,

HONORARY SURGEON, DERBYSHIRE ROYAL INFIRMARY;

AND

F. GRAHAM LESCHER, *M.C.*, M.A., M.D.CANTAB.,

HONORARY ASSISTANT PHYSICIAN, DERBYSHIRE ROYAL INFIRMARY.

TUMOURS of the caudal region of the spinal cord are by no means common in hospitals for nervous diseases; still less often are they encountered in general hospitals. On searching the clinical records of the Derbyshire Royal Infirmary we have been unable to find any other example of this condition.

Spinal cord surgery dates back some thirty-six years, when Horsley successfully removed a tumour from the dorsal region of the cord. It was in 1902 that the first lesion of the cauda equina was correctly diagnosed and successfully operated on.

In 1896 Dufour collected 21 cases of tumour of the spinal cord. Of these cases only one had been operated on, and that successfully. In 1908 Spiller[3] published an account of 9 cases, 3 of which had been operated on, and in one the tumour had been removed. There were 7 deaths, including all 3 who had been operated on.

Several other authors have published accounts of cases attended with greater success, including one of a cauda equina tumour.[3] This was removed, and the patient made a complete recovery.

The literature on the subject of the spinal cord tumours was analysed by Steinhe[4] in 1918; he collected accounts of 330 cases, among which were thirty tumours of the cauda equina. Of the latter, 5 were cured, 9 were improved, and 14 died early.

In the recent reports[5] of the Mayo Clinic there is an account of 112 laminectomies for supposed tumour of the spinal cord in the years 1910-22. In 85 cases a tumour was found, but in 3 cases only was the lesion in the region of the cauda equina, and of these 2 were due to meningo-myelitis and 1 to a tumour.

The following account is of a patient with typical symptoms, and physical signs, of a lesion of the cauda equina.

G. C., aged 42, a miner, was sent by his doctor in February, 1924, to the Derbyshire Royal Infirmary. He gave the following history. In 1920 he began to suffer from a dull ache in the lower lumbar region, and shooting pains down the back of the right

thigh. These improved during the next year, when he underwent treatment at a spa, but they recurred in 1922 and gradually became worse. In 1923 he noticed that his right leg was becoming weaker, and that there was some numbness about the perineum. In December of that year he experienced a sudden pain in the suprapublic region, and inability to micturate. After relief by catheterization there was incontinence of urine. He also stated that he was very constipated, and had not proper control over his bowel.

He was a healthy-looking man who had not lost weight. He had difficulty in walking owing to marked weakness in the right leg. There was some slight muscular wasting, and loss of tone in the muscles of this limb, especially in the flexor muscles of the thigh. All movements of this limb could be carried out, but they were weaker than those of the left side. There was no limitation of movement on bending the back, but there was some local tenderness over the lower part of the vertebral column. There was pain on pressure over the right sciatic nerve, which was increased on flexing the thigh on the trunk, and extending the leg on the thigh.

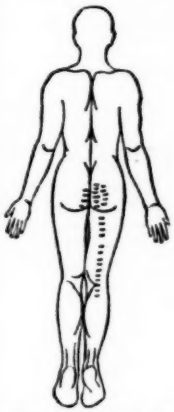


FIG. 1.—Area of loss of epicritic and protopathic sensation; also of superficial pain and temperature sense. The second, third, fourth, and fifth sacral roots are affected on the right side; on the left the fourth and fifth.

The most significant physical signs were those of disturbance in sensation. There was definite impairment and loss of epicritic and protopathic sensation, with superficial pain and temperature sense, which extended from the top of the back of the right leg up the thigh in a narrow strip, and over part of the right buttock, and to a lesser extent over the left one in a saddle-shape manner. Loss of sensation extended over the perineum, scrotum, and penis. Deep pain sense and joint sense remained natural.

The distribution of pain, sensory disturbance, and the loss of muscular power pointed to the involvement of nerve roots, the particular ones involved being the second, third, fourth, and fifth, and to a lesser extent the first sacral, on the right side, and the fourth and fifth sacral on the left. Testicular sensation had remained, since the normal nerve supply is from the lumbar plexus. The mucous membrane of the urethra and the lower part of the rectum and anus was insensitive, as the man could feel neither urine nor faeces when they were passed. On inserting the catheter it could not be felt.

On rectal examination the examining finger was not felt. The sphincter ani had lost tone, and on withdrawing the finger the crifice remained patulous.

The abdominal and cremasteric reflexes were active; the knee-jerks, though diminished, especially on the right side, could be elicited. Both ankle-jerks were absent, and the plantar response was flexor.

The patient suffered from retention and overflow of urine. The urine, on admission, was alkaline, and contained some pus cells and blood, and a growth of *Bacillus coli*. After regular catheterization, and with urotropin and acid sodium phosphate taken internally, the urine became sterile, and remained so during the time he was in hospital, with the exception of a slight attack of cystitis for a few days after operation.

An *x*-ray examination of the lower part of the vertebral column and sacrum showed no evidence of disease or injury of the bones. Lumbar puncture was performed, the needle being inserted in the space between the spines of the third and fourth lumbar vertebrae. The cerebro-spinal fluid was not under increased pressure, was colourless, and contained no cells or excess of albumin. The Wassermann reaction in this fluid and in the blood was negative.

There was no evidence of any disease of the abdomen or pelvis, or of any other part of the body.

The diagnosis of a lesion of the cauda equina in this case was made on the long history of pain in the back and down the right thigh, involvement of definite nerve roots, muscular weakness, loss of control of the sphincters, and the absence of any other nerve signs. These symptoms distinguished it from peripheral neuritis, or a more generalized disease of the nervous system. Disease of the vertebral column, abdomen, or pelvis could be excluded.

As regards the nature of the lesion, it might be due to a chronic inflammatory state or a growth, but it could not, in view of the history, be caused by a vascular or acute inflammatory condition. The commonest chronic inflammatory condition is a syphilitic meningo-myelitis, a gumma, or even a tuberculoma. Against the two former was the negative Wassermann reaction in the blood and cerebro-spinal fluid, and the absence from the latter of any lymphocytes. Were the lesion a meningomyelitis we should have expected the physical signs in the legs to be symmetrical instead of being more advanced on the right side. It was more likely, then, to be a growth of a non-malignant type, for were the growth a sarcoma we should have expected a shorter history, more advanced signs, and a greater involvement of the cord.

The next point to be determined was the level of the upper part of the tumour. It was likely to be below the third lumbar intervertebral space, since the cerebro-spinal fluid from this space showed no evidence of compression of the cord elements. The fact that the fifth lumbar root on either side was not involved made us think that the upper limit of the growth was situated below the point at which this root left the cauda equina—that is, about the level of the upper part of the sacrum. But since lesions of the spinal cord tend to be located too low, we considered that the upper border was situated about the level of the fifth lumbar vertebra.

As regards the treatment, if nothing was done the patient's condition would gradually get worse, paraplegia would develop, he would become bedridden, and would die of cystitis and infection of the kidneys, or septic absorption from bedsores. This case, however, seemed a very hopeful one from the operative point of view. We had enough facts to justify us in thinking that we had diagnosed the possible nature and the level of the lesion; but in planning the operation it had to be borne in mind that lesions of the spinal cord tend to be situated higher up than the symptoms and physical signs indicate. Owing to the uncertainty, in any given case, of the obliquity of the course of the sacral nerves, and remembering the massive backward projection of the transverse processes, it was determined to remove the laminae of the fourth and fifth lumbar and the first sacral vertebrae, and further bone if found necessary.

Operation.

The operation took place on March 1st, 1924. An incision of the skin was made over the spinous processes of the fourth and fifth lumbar and the first sacral vertebrae, the cut edges being protected with tetra towels. The muscle layers were elevated from their bony attachments by means of a sharp periosteal elevator. The bleeding was controlled quite satisfactorily with pads of gauze, wrung out in hot saline solution, held in place by the retractors; no vessels were tied at this stage. The bony arches of the fourth and fifth lumbar and first sacral vertebrae were then removed, and a very good exposure of the thecal sheath was thus obtained. At the level of the upper border of the fifth lumbar vertebra a well marked narrowing of the theca was seen; above this narrowing pulsation under the dura could be seen and felt; below it there was no pulsation. On palpating the dura a definite hard nodule could be felt under the membrane lying to the right of the middle line. The dura was incised in the mid-dorsal line for about 1½ inches. No cerebro-spinal fluid escaped until the obstruction was divided, when immediately cerebro-spinal fluid, perfectly clear in appearance, started to flow. It did not appear to be under any great pressure. Fine catgut stitches were inserted on each side of the cut edge of the dura, to act as retractors. The cauda equina was now well in view, and a mass was seen lying to its right side, pressing the cauda equina to the left. The tumour was shaped like a leech, having its head downwards, and a long granular-looking tail extending upwards just out of sight. On carefully lifting up the tumour, which was quite hard, the head and body were found to be lying free in the subdural space, but the tail was attached. Extending the thecal incision slightly, the attachment was found to be to the inner side of the dura, and not to any of the nerve roots. With very slight traction the whole tumour came away. The dural incision was closed with the finest catgut. Pulsation throughout the exposed length of the theca was restored. The wound was then closed in layers, a few bleeding points being picked up with forceps, and ligatured. No drainage of the wound was employed. Except for firm bandaging over large pads of wool, no splinting was adopted. The patient was laid on a flat mattress, and sandbags were placed on each side of the pelvis to keep him still, whilst the foot of the bed was raised on blocks.

FIG. 2.—Photograph of the tumour after removal.

After-history.

The patient did not suffer to any extent from stock, although the operation lasted over two hours.

The further surgical history of the case was uneventful; the wound healed by first intention, and there was no leakage of cerebro-spinal fluid through it. There were no post-operative symptoms attributable to loss of cerebro-spinal fluid during the operation. Previous operators have called attention to the serious consequences which may ensue if much fluid is drained away. For the first few days after his operation the pain down the right thigh was worse, being complicated with severe and painful flexor spasms. The right leg was also weaker. By the end of a week these symptoms began to improve, the pain slowly left him, and the power of movement increased in his leg. At the end

of a month he was out of bed and walking about. The anaesthesia was slower in clearing up, but improvement also occurred with regard to this, and has continued slowly up to the present. The slowest improvement of all was that of control of the bladder and rectum. Catheterization was still necessary, and he developed a mild attack of cystitis, which was, however, quickly overcome by the usual remedies. About the end of the third week he experienced slight feeling when the catheter was passed, and appreciated the passage of flatus. It was not till April 24th that he managed to pass urine spontaneously, this being helped by the pressure of his hands on the lower abdomen. This he did every hour, and so managed to keep the bladder empty, but if he went longer than an hour involuntary dribbling occurred.

Pathology of Tumour.

The pathology of this tumour is very interesting, and is unique according to the literature on the subject to which we have had access.

Dr. Hugh Barber, pathologist to the hospital, who cut a section of the growth, reported that it was a fibrochondroma. Professor Dudgeon also cut and examined several sections for us, and he says:

"This is a very interesting specimen. It is largely a chondroma with areas of necrosis, and at the periphery some calcification. There is a fibrous covering in places, and the fibrous tissue runs into the cartilaginous tumour. The fibrous tissue shows extensive old haemorrhage with tissue reaction, and marked phagocytosis of the blood pigment by the tissue cells. This would suggest that the tumour had become twisted. There are no other elements present. The cartilage cells are of the large type, such as we see in articular cartilage."

FIG. 3.

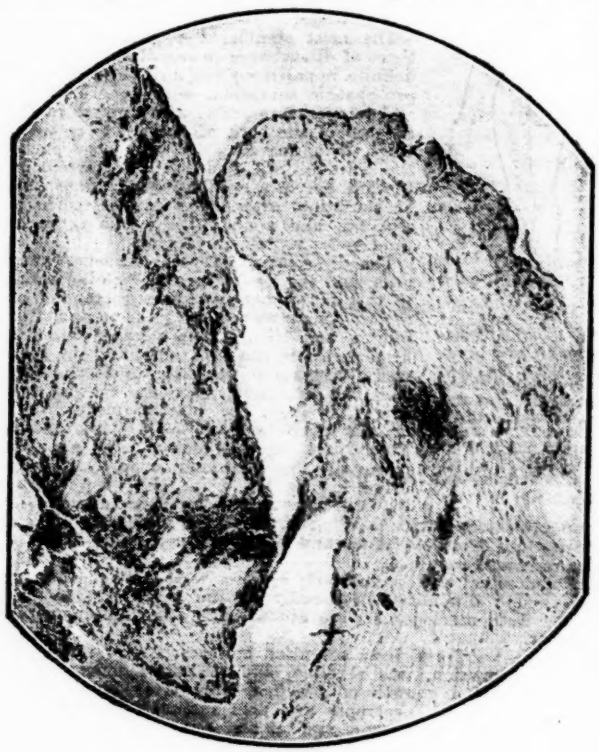


FIG. 4.

Microphotographs of a section of the tumour (Fig. 3, low power; Fig. 4, high power), showing large number of cartilage cells, with some calcification at the periphery, and strands of fibrous tissue which run into the tumour.

Having regard to the fact that at the operation we found that the tumour was attached only by such a narrow tail, we think Professor Dudgeon's surmise as to the twist is correct.

The nature of this tumour must be very rare. Steinhe,[4] in his analysis of the pathology of 330 tumours of the spinal cord, reports 26 cases of fibroma, 6 of chondroma, 2 of chondrosarcoma, but none of fibrochondroma. The commonest tumours are sarcoma (112 cases) and endothelioma (28 cases). The 3 cases of caudal tumours of which Percy Sargent[6] has given an account all proved to be sarcomatous.

The after-history of this case has been one of great though slow improvement. At the present time (February, 1925) his right leg is almost as strong as his left. He can walk several miles each day without undue fatigue, and is doing light work. He complains of no pain. The area of hypaesthesia is less, but it has been stationary for the last two or three months. The part involved now is over a small portion of the right buttock and perineum. Sensation in the urethra and anal canal is still impaired, especially in the latter. He can retain his urine for about three hours, then with an effort, helped by suprapubic pressure, the bladder will empty itself. He is just conscious of the flow of urine. There is practically no dribbling between these times, so that he has been able to discard the absorbent bag which he formerly had to wear. He has educated his lower bowel to act once in the twenty-four hours at a certain time, but he is almost insensitive to the passage of the motion. The sphincter has regained most of its tone.

The prognosis in this case is good. Since the growth is non-malignant there is no likelihood of recurrence, which, of course, is not the case with the sarcomata. In Warrington's[1] case, for instance, part of a sarcoma of the cauda equina was removed, with improvement of symptoms, but after three months recurrence took place, and the patient died. The same, though to a lesser degree, may happen to the endotheliomata.

Finally, although there has been pressure on the cauda equina for some considerable time in our case, we hope that we have interfered before degeneration has occurred, and that restoration of function may be complete.

REFERENCES.

[1] Warrington: *Lancet*, 1905, ii, p. 749. [2] Spiller: *Amer. Journ. Med. Sci.*, 1908, vol. i, p. 365. [3] Morgan and Roberts: *Med. Journ. of Australia*, 1920, ii, p 533. [4] Steinhe: *Journ. of Nerv. and Ment. Dis.*, June, 1918, p. 418. [5] *Collected Papers of the Mayo Clinic*, 1923, Ailson and Ott, p. 1052. [6] Sargent: BRITISH MEDICAL JOURNAL, 1920, i, p. 37.

IRRADIATION OF MILK AND THE HEALING OF RICKETS.

BY

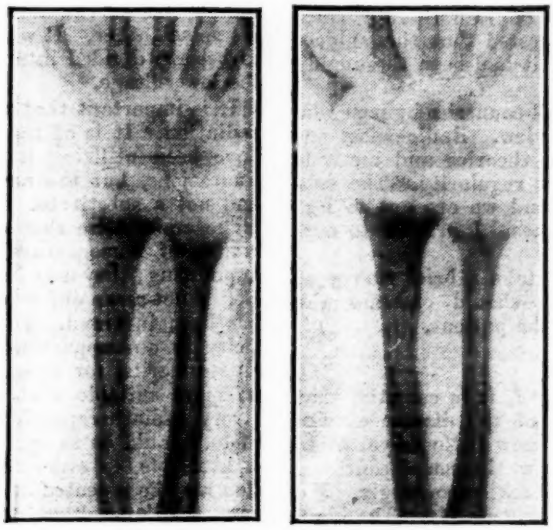
S. J. COWELL, M.B., M.R.C.P.

(From the Royal Infirmary, Sheffield.)

THE two processes of growth and bone calcification in young animals are intimately connected, as has been repeatedly stressed by E. Mellanby.[1] An adequate supply of fat-soluble vitamin in the food is essential if the animals are to grow normally and to have their bones normally calcified. But it has been shown recently that if a minimum amount of fat-soluble vitamin is present in the animals' food or tissues, exposure of the animals to ultra-violet rays will, up to a certain point, make good the deficiency of vitamin, thus promoting both good growth and good bone calcifica-

tion in animals fed on diets which would otherwise be inadequate for these purposes.

Observations on the effect of ultra-violet rays on children were published by Huldschinsky[2] in 1919. He was concerned with the calcification effect, and showed that active rickets could be healed by exposure of the children to the rays of a mercury vapour lamp. In 1922 Hume,[3] mainly concerned with the growth-stimulating effect of the rays, showed that young rats fed on a diet deficient in fat-soluble vitamin would grow if they were exposed to ultra-violet light. This same observation was made independently by Goldblatt and Soames[4] and published also in 1922. In 1923 Hume and Smith[5] found that good growth in young rats could be obtained, in spite of deprivation of fat-soluble vitamin in the food, if they were kept in glass jars which were periodically exposed to ultra-violet rays. They found subsequently[6] that this good growth, and with it good bone calcification, occurred only when sawdust was present in the jars while they were being irradiated, the "activated" sawdust having apparently a similar growth-promoting and bone-calcifying effect to that of fat-soluble vitamin. In the meantime Steenbock and Black[7] had shown that if a rat's food ration, deficient in fat-soluble vitamin, were exposed to ultra-violet rays it became "activated" and produced as good growth and calcification of bone as if the animal itself had been irradiated.



(a) (b)

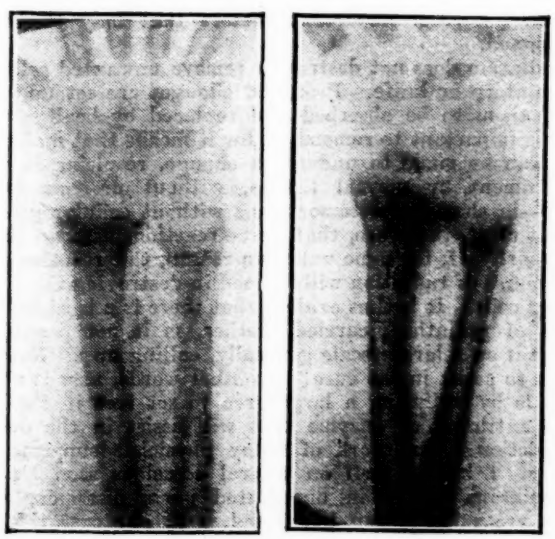
FIG. 1.—Radiograms of wrist of a girl, aged 1 year and 9 months, taken (*a*) on admission, (*b*) after one month's dieting, the milk not being irradiated. Active rickets with poor calcification of the ends of the bones is revealed in both radiograms, only a slight improvement having taken place during the month. The child had only very slight deformity of the limbs, and was remarkably fit and lively during the whole period.

In the light of these experiments it seemed important to determine whether any similar effects could be demonstrated in the case of children. Accordingly the following test was made of the efficacy of radiating children's food as regards the promotion of bone calcification. Three young children with active rickets, as determined by radiographic examination of their wrists, were admitted to hospital. They were given the following diet, which was not in itself calculated to promote particularly rapid calcification of their bones.

Breakfast: Bread 2 oz., margarine 1 oz., milk 6 oz., orange juice 1/2 oz.
Lunch: Milk 4 oz.
Dinner: Meat 2 oz., potatoes 3 oz., milk pudding 2 oz., orange juice 1/2 oz.
Tea: Bread 1½ oz., margarine 1/2 oz., milk 4 oz., marmite 1 drachm.
Supper: Bread 1 oz., margarine 1 drachm, milk 6 oz.

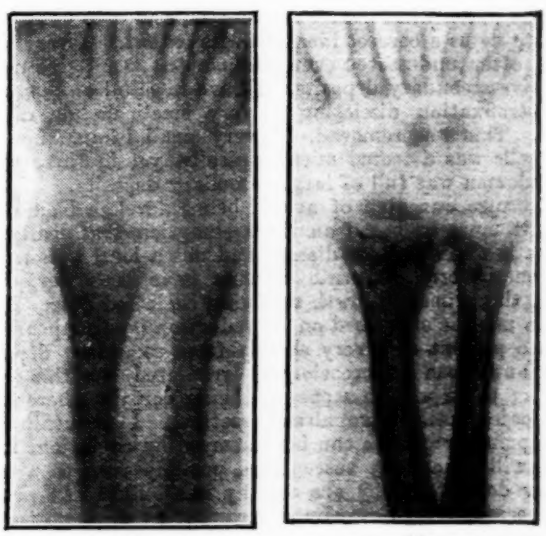
The three children thus received each one pint of milk in the twenty-four hours, and this was virtually the only source of antirachitic vitamin in their diet. As the test was carried out during the winter months the amount of vitamin was presumably not great. The milk destined for two of the children was exposed to the rays of a mercury vapour lamp of the Hanot type before it was given to them, while the third child received untreated milk. The irradiation was carried out twice a day by exposing the milk in a wide shallow dish for twenty minutes at a distance of 3 feet from the lamp. At the end of four weeks the children's wrists were again *x*-rayed. It will be seen from the illustrations that in the case of the child that received untreated milk there was during the month only a very slight increase in the amount of calcification at the lower ends of the radius and ulna, while in the case of the two children that had received milk that had been exposed to ultra-violet rays dense calcification had taken place, much in excess of what one would expect to have occurred in this short time as the result of giving this particular diet.

This quite definite and remarkable "activating" effect of ultra-violet rays on foodstuffs is obviously well worth following up, and opens up new possibilities in the treatment of infantile disorders.



(c) (d)

FIG. 2.—Radiograms of a girl, aged 1 year and 5 months, taken (*c*) on admission, (*d*) after one month of the same diet as in the first case, except that the milk was irradiated. Dense calcification is seen to have occurred during the month's treatment.



(e) (f)

FIG. 3.—Radiograms of a girl, aged 2½ years, taken (*e*) on admission, (*f*) after one month's dieting, irradiated milk being given. In this case also great increase in calcification occurred during the month.

This work was assisted by a grant from the Medical Research Council and carried out in Professor E. Mellanby's wards at the Sheffield Royal Infirmary. I wish to express my gratitude to him for permission to publish the cases and for his valuable criticism and help.

REFERENCES.

1 *Lancet*, 1919, i, 407; Med. Res. Council, Special Report Series No. 6. 2 *Deut. med. Woch.*, 1919, 45, 712. 3 *Lancet*, 1922, ii, 1518. 4 Ibid., 1922, ii, 1321. 5 *Biochem. Journ.*, 1923, 17, 364. 6 Ibid., 1924, 18, 133. 7 *Journ. Biol. Chem.*, 1924, 61, 405.

A GENERAL SURVEY OF RADIOTHERAPY IN MALIGNANT DISEASE.*

BY

S. GILBERT SCOTT, M.R.C.S., L.R.C.P.,
RADIOLOGIST TO THE LONDON HOSPITAL.

THIS is the fifth annual discussion on radiotherapy since the year when, as President, I suggested that this subject should become a hardy annual until it had been thoroughly thrashed out.

The subject is being discussed in all countries by men who look at it from various points of view. Radiologists are swayed this way and that by new theories and methods which are advocated with persistent regularity. The subject is undoubtedly very complex, and we are apt to lose sight of the wood because of the trees. I propose to outline the wood a little more clearly.

To do this, let us call a halt and take a brief survey of the present position. This survey should embrace the disease, the therapeutic agent, and the patient.

THE DISEASE.

To ensure keeping to the right road, it is essential that we should have a clear conception of the disease we are attempting to attack. I grant we know little as yet as to the cause of cancer, but we do know the usual course it takes, and we must plan our attack accordingly. We cannot expect to attain our object immediately. The high-voltage technique raised our hopes; it was thought that a short cut had been found to our object—a cure for cancer—but sufficient time has now elapsed since its introduction for us to realize that, while a definite advance has been made, we have yet a long way to go before reaching our goal—if ever it is reached. It might be said that prevention would be a short cut to the cure of cancer.

Some try to persuade us that malignant disease is a local disease. This is true within narrow limits; it certainly commences as a local lesion—the primary growth; but radiologists must not lay their plan of attack on this assumption alone. The surgeon very rarely sees early cases and radiologists practically never. We must, in any case, play for safety. The primary growth is but an indication that the patient has malignant disease, and does not by any means give us a correct idea as to its extent. A very small lesion, often undetected even *post mortem*, may give rise to extensive secondary deposits. I have in mind an operation for retrofixation disclosing a very small nodule of one ovary. This was removed. A very small island of malignant cells was detected microscopically, yet in three weeks the abdomen was full of large secondary deposits.

To ensure our plan of attack being developed on sound lines, it must be based on the assumption that malignant disease is a generalized disease and not a local lesion.

Ingenious and elaborate schemes have been devised to ensure the primary growth receiving its lethal dose. Satisfaction may be expressed on its reduction or disappearance, but the patient dies very shortly from secondary deposits. The gland areas are occasionally irradiated, but this is not enough; there are no means of being certain where stray pathological cells have already settled. I maintain that if the primary growth can be destroyed by radiation, metastases will be equally susceptible, possibly even to a much smaller dose, for they are usually less bulky. At present we concentrate on the primary growth; we must go further and endeavour to control the offspring which may be settling down comfortably elsewhere. I do not say that this control will ever be achieved, but it is the ideal we should certainly try to attain. It will, at the same time, ensure our working along the right lines. Surgeons are not content with removing the primary growth; why should radiologists be?

THE THERAPEUTIC AGENT.

I must confine my remarks to *x* rays. Some radiologists advocate the high, others the low, voltage technique. A better distinction would be homogeneous and heterogeneous radiation. *Homogeneous* radiation (high voltage) means, briefly, the use of a bundle of rays of one particular penetration. *Heterogeneous* (low voltage), on the other hand, means the use of a large number of rays of all penetrations, filtering out those rays likely to injure the skin. Either of these forms of radiation may be used on the intensive principle, but results do not necessarily depend on this factor. These two forms of radiation cannot be divorced from each other. It would be a tragedy if radiologists were to become divided into two separate schools—the high and the low voltage.

It is important that we should not discard heterogeneous radiation. It is of the greatest value, as those of us who have been utilizing it for many years know. It has its limitations, but the newer method should be an addition, and not a substitute. The reports from various countries make one realize that even under the best conditions the results of homogeneous radiation are, on the whole, disappointing; they may improve as the technique is developed. Let us not scrap our machine guns because a long-range gun has been invented. To be fully equipped we require elasticity in our apparatus, so that each case can be treated on its merits, for in some the heterogeneous radiation will be more suitable than the homogeneous, and vice versa. Every radiotherapeutic department, therefore, to be complete, should be so equipped that radiation at all voltages is available, in order that any desired condition of radiation may be repeated at will. Cannot the physicists investigate the low-voltage technique with the same care and enthusiasm they have bestowed on the high-voltage? The former has by no means been fully worked out.

Professor Wirtz, in his last report on results of radiation of carcinoma of the uterus—the most suitable type of case for high voltage—concludes with the following interesting statement: "In spite of the best technique with favourable initial conditions and good general state of the patient, the results are from time to time inexplicable, so that one is compelled to believe that for the cure of carcinoma with *x* rays certain unknown biological factors play a certain part." I should like to substitute "an important" for "a certain."

The question as to how radiation affects morbid cells is far too complex to be discussed in detail here. There are, however, several important factors that may be briefly mentioned.

Radiation does not destroy or remove unwanted cells like the cautery or knife. Profound changes are set up which allow them to be absorbed and replaced by healthy cells. This is important to remember, for it means that malignant cells can be made to undergo a change, resulting in their replacement by normal tissues, without necrosis taking place—in short, a metamorphosis without cellular death.

It is clear, therefore, that tissue reaction plays an important part. If, for some unknown reason, this reaction fails, no amount of radiation will succeed in destroying the pathological cells. It is thus evident that there is a local indirect effect of radiation; carried further, is it not possible to create it on a larger scale generally, calling up all Nature's forces to assist in the cure? In other words, may it not be possible by radiating a large area to set free in the body some antitoxin or enzyme that will assist in the desired destruction? The work of many physicists supports this theory. I have myself on several occasions seen lympho-sarcomatous glands in unradiated parts disappear after large areas have been irradiated. In one case this was manifested in half an hour! Is radiation sickness evidence of the liberation of something of the nature of an antitoxin? I have said enough to indicate a line for future research.

To sum up, let us have all forms of radiation at our command, and apply them with judgement and circumspection, for each case is a study in itself. Uniform dosage for all the various forms of carcinoma or all varieties of sarcoma cannot be entertained. Lastly, our results may be dependent, not only on the direct effect of radiation, but on some as yet unknown indirect phenomena. Experimental data are rapidly accumulating, indicating that the occurrence and nature of immunity to cancer is a field of study from which we may expect much in the near future.

* A paper read to the Section of Electro-Therapeutics of the Royal Society of Medicine, March 20th, 1925.

THE PATIENT.

It is not fit that we medical men should be accused of treating the human body as if it were merely so many cubic centimetres of material. We are all conscious of the so-called "personal element"—that tantalizing something—present, but yet not measurable. A patient for radiation should not only be thoroughly investigated physically, but his age, state of health, and so on, must be taken into consideration before deciding whether radiation will achieve anything beneficial to him.

Radiation being decided upon, the next point is to map out clearly the lines of treatment to be adopted. These may be palliative or curative. Of the patients seen by radiologists, in the majority palliation only is all that can be hoped for. This side of radiotherapy is of great value, but is being lost sight of in our efforts to cure. It is quite impossible, in certain cases, to attempt to eradicate the disease, and the chances are that if we do not discriminate the last condition of the patient will be worse than the first. The therapeutic goal varies, and each case must become a study in itself. I make it a rule to put down the objects I hope to achieve by radiation, and my plan of treatment is arranged accordingly.

Radiation Sickness or Malaise.—Radiation sickness is the bugbear of radiation. We have to inquire what its cause is, and whether it should be regarded as evidence of overdosage. The results are often disastrous to the patient, being sufficient to turn the scale against him. This puzzling phenomenon may manifest itself in several ways. Actual vomiting may occur as the patient is undergoing treatment, or sudden nausea with or without vomiting may be experienced from one to seventy-two hours after. As hospital patients describe it, "I come all over alike—suddin'." Intense headache may be complained of without gastric symptoms. With the high-voltage line of treatment vomiting may become uncontrollable. In its treatment various drugs have been advocated from time to time, but so far I have found nothing to control it. At present I do not consider that we are justified in subjecting a patient to the risk of severe radiation sickness unless we can promise him something substantial in return.

Carcinoma Mammae.

The majority of cases that find their way to the radiological department of the London Hospital, and probably at most of the hospitals in England, come under this heading. Over two thousand have been treated at the London Hospital in the last fourteen years. For this reason I have always endeavoured to improve the technique for this large class of case. Whether inoperable, recurrent, or requiring prophylactic treatment, malignant disease of the breast illustrates very clearly the problem we have to solve in radiation of cancer.

Prophylactic Methods of Radiation.—After the primary growth has been removed, not by radiation, but by the surgeon, the radiologist is called in. His interest now is not distracted by the presence of a tumour; he has to devise a technique that has a reasonable chance of destroying cells at unknown depths and positions. This is a complex problem, but it must be faced. The surgeon can, in a number of cases, remove the primary growth and glands without our help, but he is not satisfied with the results because he does not necessarily prevent metastases or recurrence. This, then, is where the radiologist can help. Even if it were possible to destroy with certainty every primary growth by radiation or any other method, I personally should not be satisfied. Metastases kill the patient just as rapidly. We must control these in addition to the original cancer.

I consider heterogeneous radiation to be of greater therapeutic value than homogeneous in the prophylactic treatment of breast cancer, for these reasons: It gives radiation absorption at various depths; a large radiation field can be utilized with minimum general disturbance. I readily grant that further development is required on these lines. I have already reached the limit of the toleration of the patient under these conditions.

There are four chief objections to the high-voltage method in this class of case:

1. The radiation field is necessarily much too limited.
2. There is no indication as to the depth at which the dose should be delivered.
3. Damage to the lung tissue is comparatively frequent.
4. General disturbance—such as sickness and blood changes—place too great a strain on the patient.

The response of many a hopeless case is often remarkable if the heterogeneous radiation is carefully carried out.

Radiation of the Whole Trunk.—I maintain that whatever form of radiation is used in cases of breast carcinoma, it is useless and against common sense to limit it to local areas. Radiation should, if possible, include the whole trunk. It benefits the patient but little to check the metastases in a localized area while they go ahead elsewhere. As there is also evidence for the theory that in many cases the patient's tissues—we do not know which—have the ability of producing some beneficial reaction, the larger the field of radiation the better.

As a preliminary effort towards achieving the conditions I consider necessary in the treatment of these cases, I introduced the dual open method at the London Hospital some three years ago. Briefly stated, it consists in placing a tube at the back and front of the patient, both running at the same time, the radiation field including practically the whole trunk. The results show, without doubt, that this arrangement has greatly increased our range of control, benefit being now obtained in cases previously out of our reach, such as secondary deposits in the spine. This is all to the good, but much research is necessary before any further advance can be expected. To my mind this is certainly a logical method of radiation, where stray pathological cells may be at unknown depths and positions. It must be realized that attempts to substitute physics for biology and medicine can only hinder sound progress in radiotherapy.

EMPYEMA OF THE LEFT SPHENOIDAL SINUS WITH OPTIC NEURITIS AND SUBSEQUENT POST-PAPILLITIC ATROPHY

BY

R. E. WRIGHT, M.D., MAJOR I.M.S.,

SUPERINTENDENT, GOVERNMENT OPHTHALMIC HOSPITAL, MADRAS.

WITHOUT actual exploration of the sphenoidal sinuses it is impossible to exclude disease of these cells as the responsible factor in certain cases of optic nerve disease. A very considerable amount of work has been published on this subject, but in spite of careful observations we are still without reliable guides, either signs or symptoms, to lead us to a definite diagnosis in cases of optic neuritis due to sphenoidal sinusitis. The case here recorded is an example of one in which there was little to indicate the true nature of the case; it also emphasizes the value of a routine examination of the sinuses on both sides.

A Hindu woman, aged 40, married, was brought to see me on April 17th, 1923, complaining of loss of vision in the right eye and headache of two months' duration. The vision of the right eye was fingers at 3 metres; left eye vision 6/9 bar one letter with *plus* 1.0. D.S. = 6/5. The headache was frontal for the most part, but with definite occipital pain, chiefly on the right side. The pupil reactions and tension were normal on either side. The right disc was somewhat swollen and oedematous on the nasal side, pallid and steamy in appearance; the arteries were narrowed and sheathed (subsiding papillitis). The left disc showed quiet neuritis, a red swollen disc with definite venous engorgement. The eye grounds were otherwise normal. There was no history of syphilis or evidence of it clinically; the Wassermann test was negative. There were no symptoms pointing to cerebral disease except headache. The reflexes were normal, as also the urine and blood. There was slight pyorrhoea, but *x*-ray photographs did not show anything definite either as regards teeth or sinuses. The right field could not be taken; the left was examined with Lister's perimeter in uniform daylight illumination (intense north light over each shoulder). 5 mm. at 33 cm. for white and

colours, and was well within normal limits. Scotometric tests with Bjerrum's screen and Elliot's scotometer revealed nothing abnormal, either as regards scotomata, relative or otherwise, with white or colours, or enlargement of the blind spot.

The patient was temporarily put on mercury and large doses of potassium iodide. As a routine I would have examined the nasal sinuses on obtaining such negative results, but unfortunately I left for Europe on April 24th, 1923, and she went home and continued to take mercury and potassium iodide. On January 3rd, 1924, the Wassermann reaction was observed to be negative. On July 3rd I again had an opportunity of examining her. Vision was then: right, fingers at 2 inches; left, 6/5 partly with correction. There was definite post-papillitic atrophy of the right disc with narrowing of vessels. The left disc was oedematous and swollen to 5 D. (suggestion of papilloedema). Examination of blood, urine, nervous system, and skull by x rays gave negative results. There were no symptoms of pressure. The fields and vision of the left eye remained the same. I was unable, owing to indisposition, to undertake the exploration of the sphenoidal cells at this time. She went to her home and was not seen again till August 13th, when she was admitted to hospital. The result of ophthalmoscopic examination on this date is thus recorded: "The right disc is definitely atrophic. The arteries are quite narrow, the veins about normal; there are slight pigmentary disturbances at the disc edge; a post-papillitic atrophy. The left disc is red and slightly swollen, but much more like a neuritis than a papilloedema. There are no changes in the fundus otherwise." Perimetric and scotometric examinations gave the same results as before; the urine and blood examinations were again negative. The blood pressure was 125 mm. Hg.

On August 16th I made a full examination of the nose on both sides under local anaesthesia. The right side was normal. The sphenoidal sinus ostium when opened up disclosed a pearly-grey healthy membrane lining a small sinus. The left side of the nose appeared normal as regards frontal and ethmoidal regions, but the ostium of the sphenoidal sinus was blocked, and, on pushing the sinus probe through, pus escaped under slight pressure along the probe. The anterior wall of the sinus was partially removed, revealing a thickened and red lining. The sinus was dried out and packed with bismuth gauze and the patient sent for x-ray examination.

This method of demonstrating the relation of one sphenoidal sinus to its fellow by packing one sinus with bismuth gauze and then taking a stereoscopic x-ray photograph is useful, and aids considerably in reading the x-ray plates aright. The left sinus was much more extensive than the right, and partially enveloped it. Presumably it was of the variety to which both nerves were related, the right nerve being more vulnerable (either by virtue of a larger course in the sinus or a thinner bony canal) than the left. Such relations of the optic nerves are described and exemplified by Onodi. The patient was dicharged a few days later. In November, 1924, the vision was: right, fingers at 2 metres; left, 6/6 with correction. The left field showed a slight general contraction under the same conditions as above. On ophthalmoscopic examination the left disc was almost normal in appearance. The right disc showed a post-papillitic atrophy with threadlike sheathed arteries. My note says: "The fundus immediately surrounding the disc shows a greyish granular appearance, but I would consider the disc within normal limits did I not recognize the patient."

A most interesting point in connexion with the case is the nature of the field of the left eye. Careful tests on several occasions elicited nothing. This is in contrast with many recorded cases, in which a relative central or paracentral scotoma is a prominent feature. The fact that the right nerve suffered most in a left sinus affection must be comparatively uncommon. The left nerve, although affected in greater or lesser degree for over eighteen months, retained its function (although subsequent subsidence of its inflammatory condition brought as a sequel a slight cicatricial damage associated with a trivial fall in vision and a contraction of the fields). It is noteworthy that in an ordinary x-ray examination pus in the sphenoidal sinus is liable to be overlooked. Evidently, in doubtful cases of papillitis, it is very desirable to explore the sphenoidal sinuses on both sides; one must not be content with finding a normal sinus on the side of the most affected eye. This is in many cases such a simple procedure that there is no justification for omitting it.

Dr. Muthayya, medical officer in charge of the refraction department, very kindly collected and analysed the notes of this case.

USEFUL REFERENCES.

American Encyclopedia of Ophthalmology, vol. xii, p. 9588.
Onodi: *The Optic Nerve and the Accessory Sinuses of the Nose* (translation by Lückhoff).

EMBRYOMA IN THE OMENTUM CAUSING SYMPTOMS SUGGESTIVE OF URETERAL CALCULUS.

BY

A. E. WEBB-JOHNSON, C.B.E., D.S.O., M.B., F.R.C.S.,

SURGEON TO THE MIDDLESEX HOSPITAL.

THE following case is of interest, both from the point of view of pathology and of diagnosis.

A woman, aged 40, was sent to see me at the Middlesex Hospital, with a provisional diagnosis of renal calculus. Her symptoms were certainly suggestive of this condition being present. She complained of attacks of pain in the left loin coming on suddenly and radiating towards the inguinal region. She also complained of some irritability of the bladder with painful and frequent micturition, which persisted for some time after the attacks of lumbar pain. The urine contained pus, but no blood cells. The organism present was the *Bacillus coli communis*.

An x-ray examination showed the kidney region to be free from any sign of calculus, but in the pelvis was a shadow of irregular shape, about the size of a large plum-stone. Cystoscopic examination showed the bladder and the ureteral orifices to

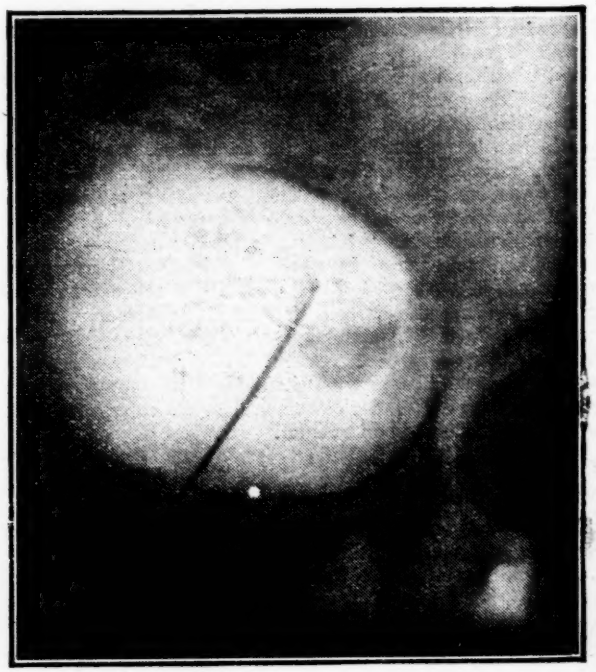


FIG. 1.—Radiogram taken in an oblique direction with an opaque catheter in the ureter.

be normal, with the exception of some slight congestion of the bladder mucous membrane. Although the shadow in the pelvis was not in the least like that of a urinary calculus, I thought it better to make sure that it was not in the urinary tract. I therefore passed an opaque ureteral catheter, and had an x-ray photograph taken. The examination showed that the shadow of the catheter was superimposed on that in the pelvis, but another radiogram taken in an oblique direction showed that the shadow was separated by a small interval from the course of the ureter (Fig. 1). As the irregular shape of the shadow suggested that it might be caused by a calcareous deposit in an ovary, I asked Mr. Comyns Berkeley to co-operate with me in an exploratory laparotomy. Mr. Berkeley opened the abdomen, but found that both ovaries were normal; I then extracted a small, hard, irregular-shaped tumour, freely movable across the pelvis, but attached above to the lower edge of the omentum and below by a thin fold of peritoneum to the posterior wall of the bladder. The connexion with the bladder and the free mobility of this hard mass probably accounted for the patient's symptoms of pain and frequency of micturition, which were so suggestive of some disorder of the urinary tract.

On section the tumour was found to be of mixed formation, part of it being cystic and part of it hard, bony, and calcified. The cystic part contained a mass of hair and sebaceous matter. The tumour was evidently a small embryoma.

In Sir John Bland-Sutton's book *Tumours, Innocent and Malignant*, we read:

"Many cases have been reported in which cysts containing pilose skin, and occasionally teeth, have been found on the omentum and the serous covering of the intestine. In some

instances these cysts are due to the rupture of an ovarian dermoid, and some of the cells scattered about the abdominal cavity have engrafted themselves on the peritoneum, and formed independent cysts. Quite apart from cysts arising in this way, teratoid cysts do arise independently between the layers of the mesentery, the omentum, and the folds of peritoneum connected with the caecum, colon, and rectum, as well as the omentum. Most of the reported cases occurred in children and adolescents,

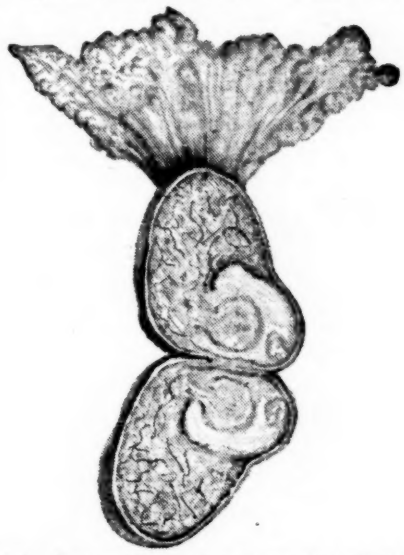


FIG. 2.—The teratoma cut across (two-thirds size), showing the hard part (opaque to the *x* rays) and the cystic part containing grease and hair.

especially females. As a rule the cyst contents are grease and hair, but some are more complex and contain bone, cartilage, muscular and nerve tissue."

"It is impossible to recognize the nature of such cysts clinically. They seem to remain latent for a variable period, and then with dramatic suddenness cause acute abdominal pain simulating peritonitis, or intestinal obstruction. Some never cause trouble and are found accidentally at a *post-mortem* examination."

These intra-abdominal embryomata, though quite rare, are well known. They are probably connected in some way with the development of the genital glands, and the position of this one in the immediate neighbourhood of the left ovary suggests that it was developed from a primordial cell isolated from the developing ovary.

The special interest of the present case lay in the anatomical connexions of the tumour, which produced a train of symptoms suggestive of disease of the urinary tract.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DIAPHRAGMATIC HERNIA AFTER BULLET WOUND OF CHEST.

THE following case is interesting, not only from a pathological standpoint, but is worthy of comment as emphasizing the possibility of late sequelae in war pensioners who have received gunshot wounds of the chest.

W. J., aged 35, received a gunshot wound in the chest a fortnight before the armistice. The bullet (which was not removed) entered the back of the left side of the chest, approximately 4 in. below the inferior angle of the left scapula and 2½ in. from the middle line.

I was called to see him on the evening of March 2nd, 1924—approximately five and a half years after he had been wounded. He had been taken ill that afternoon with retching and recurrent attacks of vomiting, associated with colicky pain all over the abdomen. The condition did not subside, but continued till the following day, when it was obvious that he was suffering from acute intestinal obstruction.

He was admitted to Ulverston Cottage Hospital, and, approximately twenty-four hours after the onset of the illness, I explored the abdomen by an incision below the umbilicus, splitting the right rectus. The caecum, distended to the calibre of an adult fist, presented itself at the wound. The distended gut was traced along the colon, as far as the region of the splenic flexure, where it appeared to vanish. The descending colon was collapsed. With the arm in the abdominal cavity up to the elbow I was able to feel an acute kink in the region of the splenic flexure. The apex of the kink appeared to be firmly adherent to the diaphragm by strong cicatricial tissue, and the bowel to be enveloped by tissue of a similar nature. As the patient's general condition was poor (he had had two or three faecal vomits just before the operation) I closed the abdomen and performed a temporary caecostomy.

Four weeks later the abdomen was reopened by a long paramedian incision, extending from the left costal margin to below the level of the umbilicus. The small intestine was packed off, and the area of the splenic flexure investigated. I was able to view the lesion. There was a fairly large diaphragmatic hernia, the sac containing the splenic flexure and the terminal part of the transverse colon. I was able to introduce two fingers into the sac externally to the gut. It was impossible to dislodge the contents of the hernia, as the gut was firmly adherent to the sac wall by thick bands of cicatricial tissue. At the fundus of the sac the scar tissue was most pronounced, and this may have been due to an encapsulated bullet, but I could not be certain of this.

To have attempted to reduce the hernia by breaking down adhesions would almost certainly have ruptured the diaphragm, and possibly also the pleura. Accordingly ileo-sigmoidostomy was performed and the abdomen closed.

Three weeks later the caecostomy opening was closed. Some leakage occurred about the seventh day after operation and the faecal fistula recurred. It was considered advisable to give the patient a period of rest to recuperate after the three operations before attempting to reclose the opening in the gut. Accordingly he was discharged from hospital, having been fitted with a suitable controlling belt.

Three months later he was admitted to the Ministry of Pensions Hospital, Liverpool, where the fistula was successfully closed. He is now fit and well, his bowels moving regularly *per vias naturales*.

There is nothing in the man's previous history of interest other than to state that for two years prior to onset of the illness he was particularly subject to flatulence. He had never been troubled with constipation. The case, therefore, was one of acute intestinal obstruction due to an irreducible diaphragmatic hernia of traumatic origin.

I must acknowledge the services of Mr. French of Birkenhead, who performed the fourth stage of the operation, and in supplying an account of it, without which the notes of the case would have been incomplete.

GRAHAM W. CHRISTIE, *M.C.*, M.B., F.R.C.S.Edin.

Ulverston.

PER-URETHRAL OPERATIONS FOR PROSTATIC OBSTRUCTION.

MR. KENNETH WALKER, in his excellent article on per-urethral operations for prostatic obstruction (BRITISH MEDICAL JOURNAL, January 31st, p. 201), has brought into prominence work that is, I believe, carried out by only a few surgeons in this country. Perhaps the conclusions I have come to in work which has been done largely in the Surgical Unit here during the last four years may not come amiss. The method employed has been fulguration of the prostate carried out by a diathermy electrode introduced through the cysto-urethroscope.

In the malignant prostate, where so much had been hoped for, the results were poor. In the adenomatous prostate, where enlargement of the lateral lobes could be detected by rectal examination or seen through the cystoscope, any improvement was only temporary, and not greater than that which followed the introduction of a full-sized metal bougie—a method of treatment in vogue many years ago. In addition, there can be no question that in this type of case such treatment is dangerous. When, on the other hand, the middle lobe was alone involved and not much enlarged, much improvement followed fulguration; this has so far been permanent, and the residual urine has completely disappeared.

In the prostatic bar, which was secondary to atrophy of the prostate, and in the small fibrous prostate, excellent results were obtained. But in the chronic inflammatory enlargement with residual urine, which did not react to massage and dilatation, the improvement was not so immediate or so marked, though it gradually became greater.

Fulguration is not so severe an operation as prostatectomy; the mortality is much less and the convalescence much shorter. But it should not be regarded as an alternative to prostatectomy except where the middle lobe alone is enlarged. It should be carried out only in those cases where prostatectomy is unsuitable, not on account of the general condition, but owing to the state of the prostate gland itself.

T. E. HAMMOND.

Cardiff.

TREATMENT OF GENERAL PARALYSIS BY MALARIA.

THE purpose of this note is to call attention to a new method for the preservation of malaria parasites—namely, on ice *in vitro*—first used, I believe, in this country in our laboratory in November, 1924. The technique of the new method, which comes from the clinic of Pötzl of Prague, is as follows:

On withdrawal the parasite-containing blood is defibrinated by shaking it up with glass beads in a flask or test tube under sterile conditions; the fluid, containing corpuscles and parasites, is transferred to another sterile test tube, and this is kept in the ice-chest, or, if for immediate dispatch, packed surrounded by ice in a thermos flask.

By this means simple tertian parasites have been kept alive and capable of infecting for varying periods up to and beyond sixty-five hours, and thus the difficulty of successfully inoculating due to distance and time in transit has been overcome.

Mosquito-borne malaria need not and should not now be used, for, being more liable to relapse and not so completely under quinine control as inoculated malaria, it is a danger to the community.

It may be taken that sixty-six hours is by no means the limit, for we have found the parasite stain well after seven days in the ice-chest. Successful inoculation by this means has been obtained in London, Birmingham, and Liverpool, with blood sent from here.

R. M. CLARK.

County Mental Hospital,
Whittingham, Preston.

AN OBSCURE CEREBRAL CONDITION.

THE following account of a somewhat unusual case appears to be of sufficient interest to merit publication. The onset of the illness was acute, and included pyrexia, which lasted for a fortnight, severe gastritis, and constipation for three weeks, and violent eye movements which continued for a month.

On the evening of August 30th, 1924, I was called to see a boy, aged 14, who had not felt very well on the previous day, but had bathed twice in spite of this; after the second bathe he felt sick and giddy and went to bed. When I saw him he was pale, sighed frequently, said he felt very giddy and sick, and looked as if he might vomit at any moment. The pulse rate was 80 and regular, the temperature 100° F.; the bowels had not acted for two days, and the tongue was very furred. He kept his eyes tightly shut, and the eyelids were twitching. I did not examine the eyes, as he said it made him feel sick to open them. He was a very intelligent, quiet boy, not at all drowsy, and he had no headache. Nothing abnormal was found in the chest or abdomen, but I did not examine the nervous system. The next day he vomited several times, and the tongue was very furred; the bowels had not acted. The temperature was 101° and the pulse 92. On September 1st the temperature ranged from 98.8° to 100.4°; he still complained of extreme giddiness, which made him sick, especially if he opened his eyes or moved his head. He could not move his head from the pillow without jerking it violently, but there was no twitching or jerking of the limbs, and the head remained stationary unless he moved it voluntarily. He could only open his eyes with an effort, and it was noticed that they were in violent motion, in no regular direction; the eyes would go round and round three or four times, then from side to side in the most irregular manner, and with great rapidity, the extent of movement appearing to be at least 90 degrees. As far as I could make out both eyes moved together. There was no lateral deviation; on asking him to look to one side he was able to fix the finger for a moment, the violent movements would then occur for a few seconds, and then he would fix the finger again. This sequence occurred whatever the position of the finger. He had no diplopia. His most comfortable position was lying on his back with his head slightly inclined to the left on one thin pillow. He afterwards described his sensations at this period as if the bed first "pitched" very rapidly, then "rolled," then rotated to the left, with the right side inclined at an angle of 45 degrees, so that he felt he was going to be flung out, although he was quite aware that the bed was really stationary. He attributed the sickness to the feeling of movement, being normally a bad traveller, and hardly able to look at the sea without feeling sick. He had no headache.

Dr. Basil Armstrong saw him in consultation that day and examined him very thoroughly. The ears appeared normal, and there was no history or evidence of past otorrhoea; tuning-fork tests showed aerial conduction to be greater than bone conduction, and no diminution of hearing was detected. There was no facial weakness, but the tongue protruded very slightly to the left. No stiffness of neck was present. Examination of the arms showed that the muscular power was good, the jerks were normal, the co-ordination normal, and there was no dysdiadokokinesis. The abdominal and cremasteric reflexes were normal. The knee- and ankle-jerks were slightly increased on both sides, and the plantar responses were flexor; Kernig's sign was absent. The sensation was carefully tested and found normal everywhere. Lumbar puncture was not performed. The urine was acid and highly coloured; albumin, sugar, and acetone were absent.

For the next week the temperature ranged from 98.2° to 99.4°, and the pulse remained slow, always under 80 and generally between 60 and 70. The eyes still continued their rapid movements of wide amplitude, but the patient gradually became able to fix objects for a longer time. The gastric symptoms then became more prominent; there was complete anorexia, furred tongue, very obstinate constipation, and vomiting of very tenacious mucus, which was alkaline in reaction. A differential blood count showed nothing abnormal. After September 11th the temperature remained normal, and the eyes gradually steadied, but the rate and amplitude of movement did not alter. The gastric symptoms and tongue cleared quite quickly between September 16th and 18th. On September 22nd the eyes were steady but attempts to sit up brought back at once the rotatory movements as badly as ever, and made him feel sick and giddy. He had one or two restless nights about this time, but they soon got better, and never became a prominent symptom.

During the last week in September I began to prop him up with pillows, and after a few days he was able to sit up; he then went out in a bath chair, and no untoward symptoms appeared. In the first week in October he was able to walk, and he then returned to his home near London. On October 19th I heard from his parents that he was quite well, but that they had decided to keep him from school till after Christmas. Retinoscopy was impossible during the early part of the illness, but at the end of September I was able to see the fundus without difficulty; there was nothing abnormal, except that the veins seemed a little engorged.

The treatment was symptomatic and cannot be said to have had any effect on the disease; at first I gave chloral, bromide, and sodium bicarbonate; then sodium bircarbonate before and hydrochloric acid after food; in the third week he had hexamine, and when convalescence was established iron, quinine, and arsenic.

In a letter dated March 6th, 1925, his mother tells me that he has had no return of the giddiness; he eats well and sleeps well; he has returned to school and is making good progress. In fact "he is quite his old self again." He has not suffered from headaches.

Westgate-on-Sea. FREWEN MOOR, *M.C.*, M.D.

ANEURYSM OF THE SPLENIC ARTERY.

THE case published by Mr. D. C. L. Fitzwilliams (BRITISH MEDICAL JOURNAL, November 1st, 1924, p. 803) prompts me to send the following report of a case I have recently seen.

I was called at 8 a.m. to see a married woman, aged 27, who was said to be suffering from severe abdominal pain and persistent vomiting. I found the patient to be extremely blanched, restless, and showing evidence of air hunger.

She complained of severe pain in the left side of the abdomen, high up under the ribs. I was informed that she had been perfectly well until about 9 o'clock the previous evening, when, as she was getting into bed, she was seized with violent abdominal pains and vomiting, and felt faint and helpless. She was alone in the house and was unable to attract the attention of the next-door neighbours, so that she remained in this condition until the return of her husband next morning.

She was, according to her menstrual history, about four months pregnant and was a primipara. When about four weeks pregnant she had been treated elsewhere for pernicious vomiting of pregnancy, and was laid up in bed for several weeks; her symptoms at that time were, as far as I could gather, very similar to those now present. Since that time she had been perfectly fit. There was no history of vaginal haemorrhage.

The radial pulse was running and impossible to count. The abdomen appeared rather distended, and there was dullness over the left side, but she was difficult to examine properly owing to the persistent retching and vomiting. There was a pyriform swelling extending up from the pelvis and just palpable above the symphysis pubis. She was admitted to the local cottage hospital, where she died shortly afterwards.

Post-mortem Examination.

On opening the peritoneal cavity a small quantity of blood-stained fluid escaped; the left side of the abdomen was filled with an enormous blood clot extending from the region of the spleen. The clot was densely adherent to the stomach and intestines in many places, and it was impossible to detach it without rupturing the organs, thus showing that the condition must have started some time before, and possibly during the first month of pregnancy, when the patient became ill.

The spleen was about normal in size, but flabby and pale in colour. A small aneurysmal sac, which had ruptured, was found on the splenic artery, and the blood clot extended from this.

All the internal organs were extremely pallid and flabby. No other abnormalities were found. The pelvic organs were normal, and the uterus contained a foetus of about four months. The splenic specimen was shown to Dr. Piney, pathological director, Charing Cross Hospital, who confirmed the diagnosis.

R. H. YOLLAND,
Bromley, Kent. B.A.Cantab., L.M.S.S.A.Lond.

Reports of Societies.

RADIATION THERAPY.

DISCUSSION IN ELECTRO-THERAPEUTIC SECTION.

WHEN Dr. Gilbert Scott was President of the Section of Electro-Therapeutics of the Royal Society of Medicine five years ago he suggested that a discussion should take place annually in that Section on the subject of radiation therapy. The fifth such discussion was held on March 20th, but the opening paper by Dr. Gilbert Scott on "Radiation, with special reference to the treatment of carcinoma of the breast by *x* rays," and a communication by Dr. J. H. Douglas Webster on "Results and problems in deep *x*-ray therapy," took up all the time available, and it was decided that the general discussion should be adjourned until the meeting of the Section in May.

Dr. STANLEY MELVILLE, the President of the Section, in opening the meeting, deplored certain attempts, made partly within and partly without the general body of radiologists, to divide radiology into two schools of thought, one supporting the old and the other the new therapy. Such a division was dangerous. Already surgeons were sending patients to radiologists with the proviso that they were not to be treated by the so-called deep therapy methods. He did not wish radiology in this country to be regarded as attached to any particular form of radiation. What people outside the ranks of radiologists were forgetting was that radiologists were increasingly inclined to view the matter from the biological standpoint, and that some very important research was taking place in that connexion; he instanced the experimental work on animals conducted by Professor Sidney Russ. More regard was being paid to the resistance of the tumour, the response of the surrounding tissues, and, above all—as a determining factor in the selection of the type of ray—the condition of the blood. Radiologists were not and must not be tied down to any particular type of radiation. No doubt a high-voltage radiation was wanted in many cases, but so was radiation of other kinds, and he would be very sorry to see two schools of thought, antagonistic to each other, arise. The radiologists were getting over many of their early difficulties, and he hoped they would resist this fissiparous tendency. He hoped also that light might be thrown on two questions: (1) Were radiologists spending too much time in considering the apparatus rather than the part to be irradiated? (2) Were they obsessed by the desire for rays of shorter and shorter wave-length? Were they thinking too much about voltage and too little about other factors? If all they wanted was radiation of greater hardness he did not doubt that physicists would be able to build machines which would furnish *x* rays of such hardness as to outdo by far the gamma rays of radium, but that did not seem to him to be the proper way to approach the problem.

Dr. GILBERT SCOTT then read the paper which is printed in full at page 596.

RESULTS AND PROBLEMS IN DEEP *X*-RAY THERAPY.

Dr. J. H. DOUGLAS WEBSTER (physician in charge of the Radiological Department, Middlesex Hospital) agreed with Dr. Scott and with the President that it was unfortunate in many ways that there should be a division between superficial and deep therapy. Such a division was quite legitimate from the point of view of the *X*-ray Protection Committee, but practical treatment was a different matter. In the prophylactic treatment of the breast, which was the subject he chiefly desired to speak about, what he called a medium deep therapy (that is, employing a voltage of from 100,000 to 150,000) was the most satisfactory.

Prophylactic Breast Treatment.

Dr. Webster went on to say that the problem of prophylactic post-operative treatment of cancer of the breast was different from the treatment called for after operation for cancer in most other sites. The presence of the air-filled lungs diminished the scattered radiation factor very much at the pleura, and made it impossible with one application (except in extremely thin patients) to give a sufficient dose at the pleura without profoundly damaging the skin. Therefore breast prophylaxis had to be a cumulative treatment, prolonged over a number of months or even up to one or two years. The best results reported, so far as he was aware, were those of Anschütz and Hellman, relating to 240 cases, 77 per cent. of which were free from recurrence after one year, and 60 per cent. after three years of Group I patients at time of operation. Occasionally during the prophylactic courses the earliest signs of recurrence were discovered in the shape of enlargement of the opposite axillary or the supraclavicular glands, or, more rarely, nodules near the scar; in almost every case when such recurrences or suspicious signs appeared his practice was to change over to high-voltage therapy—that is, over 150,000 volts—and in a large proportion of cases with a successful result. Each of these patients was examined at six weeks' intervals for two years, and in only about 12 per cent. of cases did these earliest signs of recurrence fail to disappear. During the last two years he had paid special attention to the opposite axilla, following out Mr. Sampson Handley's theory of invasion of the opposite axilla by the lymphatics in the fascia, and very few opposite axillary enlargements had been encountered. Enlarged axillary and supraclavicular glands, of course, were not always malignant; when removed surgically they sometimes showed merely hyperplasia and appeared to be free from gross signs of invasion, but serial sections, he believed, sometimes showed, or at least suggested, an enlargement as a reaction to the very earliest invading cancer cells. In every case, therefore, in view of the fatal character of cancer of the breast—Lee, in the United States, had estimated that only 15 per cent. of all cases treated surgically were living at the end of five years—it was probably best to carry on treatment on the presumption of malignancy.

The technique to secure a comparatively homogeneous surface radiation of the breast was very difficult owing to the shape of the breast and the surrounding regions, and the great differences in the configuration of patients. It was entirely wrong to divide the area up into squares, according to one American method, for little strips between the marked-off portions were likely to receive no dose at all, and microscopic evidence showed that here the cancer cells remained organized; they were not degenerated as they were in the portions which had received the radiation. Radiation could be carried out in two ways: the first by radiation from one or more points at a great distance, 50 or 80 cm.; and the other—which was the one he preferred for prophylactic cases—based on Holzknecht's method of radiation over large surfaces, whereby the area from the supraclavicular to the umbilical level was covered by the rays from two or three points, at an angle of, say, 30 degrees from above and below, and from the side, and in most cases an additional dose was given into the apex of the axilla. This near method was more rapid and less troublesome to the patient, and he thought it gave as good results as any other.

Analysis of 336 Breast Cases.

Dr. Webster then gave statistics first of all of 148 cases of carcinoma of the breast which he had treated by the medium-voltage method, mostly following operation. If 30 cases were excluded because they had had only one or two treatments and had then been lost sight of, and 10 because they were inoperable, recurrent, pre-operative, or mastitis cases, the remaining 108 were analysed as follows: 34 (32 per cent.) had died; 36 were continuing treatment, and of this number 9 had already gone one year after operation and were apparently well; and 38 (35 per cent.) were now having no treatment, though they came up regularly for report, and apparently were well at the end of two years. If to these 38 were added the 9 just mentioned, the result was 47 cases (43 per cent.) of apparent successes—a good percentage considering the number of advanced cases at operation included in the series.

In addition to the above, 188 patients had been treated with high voltage (200,000 volts), in most instances combined with some areas with medium voltage. These were the most

severe cases (not prophylactic), the series including a number of inoperable breasts and recurrences, and they were also the most difficult to analyse. Of the 188 cases, 84 (45 per cent.) had died or had abandoned treatment and had been lost sight of, and 45 (24 per cent.) showed a good result and treatment had been discontinued. In 27 cases in which slight recurrences were noted during prophylactic treatment, 14 were now off treatment, showing no signs of recurrence, and only 3 had done badly. He distinguished ten groups among these 188 cases, dividing them according to the nature of the operation done or the type of the growth. Some cases of incomplete operation, with radiation immediately following, had done very well. He laid stress on the need for careful investigation of each bad result. The radiologist should make up his mind as to the reason for any fatal result, and whether any possible alteration of technique or treatment might have prolonged life. In nearly every case where the patient died the death was due to wider or deeper extensions of the disease.

"In Advance" Treatment.

During the last two years, Dr. Webster said, he had been feeling his way to what might be called the "in advance" method of treatment. In some sites this was a customary procedure, but in the breast it was very complicated. The method was based upon Mr. Handley's theory of lines of centrifugal lymphatic spread, and his aim had been to irradiate the lymphatic areas in advance of any clinical signs of the disease. Thus, if the axilla was involved, special attention should be paid to the supraclavicular triangle; if the latter was involved, radiation should also be given to the anterior mediastinum. If the tumour was in the inner quadrant of the breast, and radium had not been inserted at operation in the sterno-costal spaces, sternal radiation should be carefully carried out. If the tumour was in the lower quadrant of the breast the epigastrium and abdominal fascia and perhaps the hip on the same side should be irradiated. A primary breast case which he had treated some years ago, apparently satisfactorily for a year, ultimately died with hip metastasis. A prophylactic course, therefore, was not entirely routine technique, but was modified to suit the special requirements of the case. Several American surgeons had the lungs and spines of all breast cases radiographed before operation; certainly in some cases, even of very small breast tumour, invasion of the chest and spine could already be made out; he thought that this *x*-ray examination should always be done.

Factors Determining Recurrence.

Dr. Webster said that cancer of the breast offered one of the most satisfactory fields for the study of cancer, biologically and clinically, and the fact that patients came up even as long as eighteen years after operation with local recurrences at or near the scar made one hesitate to use the word "cure." Some patients treated had shown, after quiescent periods, a sudden flaring up of multiple recurrences, and this problem required much more study. Analysis of a large series of cases showed that many confidently expressed opinions in medical and lay journals were fallacious. A recent note in a medical journal stated that the greater number of cancer patients died during the winter, but among the patients who had died in his series of cases the deaths were very evenly divided between the different seasons. Recurrences had been noticed coming on after confinement to the house with bronchitis or sciatica, and patients who had done unusually well had been in several instances those who lived an open-air life, a circumstance which suggested that ultra-violet treatment might be tested as a means of raising the patient's resistance. Among the bad results were a number of patients who were really accepted in the terminal stages of the disease. In some instances radiation treatment might appear to accelerate death, though he saw no reason why, in the attempt to benefit some of the practically hopeless cases referred to him, the radiologist should not be given the immunity granted to the surgeon when faced with similar difficulties, and it was not right that the results of the treatment in terminal cases should be held to afford a reasonable test of the value of any form of treatment. He mentioned one case of a gastric cancer in which the patient was in good condition, but in which, in view of her age, he decided not to give radiation treatment. The patient died quite unexpectedly two or three weeks after his visit, and had she been treated no doubt the radiation would have been blamed for the result.

Problems Awaiting Solution.

Dr. Webster went on to pose a number of problems:

1. Was there a stimulation dose? In plants it had been proved that growing seeds could be stimulated by small doses of *x* rays, but it was strongly disputed by Holzknecht and a number of others that stimulation could play any part clinically. At the same time there were some observations which suggested the contrary. In rodent ulcer on a convex surface like the forehead the centre could be more radiated than the edge with imperfect technique, and he had seen the edge growing rapidly after wrongly applied irradiation. In two radium cases a ring of nodules had appeared round an area to which radium had been applied for nodular recurrence.
2. Was it really better—and if so under what conditions—to give a maximal dose in a short time? In America the intense application of radium—500 millicuries of radium element applied for about one minute—had been employed on small rodent ulcers with good results. In other conditions the very opposite method gave excellent results with radium. The answer to this problem was not clear yet for either *x* rays or radium.
3. The physical and biochemical theories of action on which dosage and results depended had still largely to be determined.
4. A variety of opinions was advanced as regards the action on the cancer cells, some stating that radiation never acted directly on the malignant cell, or only acted through stimulating the surrounding tissues, and it was also claimed, as Dr. Scott seemed to believe, that it acted chiefly through a general effect on the whole body. In lymphosarcoma the rays seemed chiefly to act by the damage they did to the cancer cell, but in the breast they also stimulated connective tissue formation, and might also act largely by stimulating the resistance of the body.
5. Was radiation chiefly a local or a general action? Dr. Scott seemed to be giving up the local action theory and turning to the general. This might be a dangerous method, Dr. Webster thought, if given intensively. Local action was more certain than general, and its results had been proved in thousands of cases.
6. The relation of the tumour to the glands. He would like an opinion from radiologists as to whether they favoured the centrifugal or the centripetal method—that is to say, was it best to begin treatment in the opposite axilla or supraclavicular, and gradually work back to the primary growth, or to begin with the primary and go gradually out?

Conclusions.

Dr. Webster's conclusions were as follows:

1. Study of *x*-ray results and methods should be based on a large series of analysed cases, not on statements of results in a few selected cases.
2. The value of prophylactic radiation after operation seemed to him established. Cases treated promptly after operation practically never had the large inoperable local recurrences that were seen too often in patients who had no full post-operative *x*-ray treatment.
3. A medium-voltage technique for prophylactic breast work had given the best results hitherto published.
4. Any recurrences appearing should be treated with high-voltage radiation. He had seen a number of examples where the change over from medium to high immediately produced a satisfactory result, which treatment with medium voltage had failed to produce. The same sometimes happened with the change over from high-voltage *x* rays to radium. Sometimes, but rarely, the reverse—a change down—might prove beneficial.
5. A considerable number of cases had been observed in which early recurrences had completely disappeared with prompt radiation. This was a very valuable means of arresting the progress of the disease.
6. Operable and inoperable growths and recurrences had been arrested for considerable periods and inoperable tumours rendered operable.
7. The field of auxiliary therapy to radiation, whether arsenic, iodine, lead, or copper injections, organic extracts, or ultra-violet radiations, was one calling for much future hopeful work.

The discussion was adjourned until May 15th.

VITAMIN DEFICIENCY.

THE resumed discussion on "Non-specific disturbances of health due to vitamin deficiency" took place at the Royal Society of Medicine on March 23rd, with the President, Sir STCLAIR THOMSON, in the chair. The report of the opening of the discussion appeared in the BRITISH MEDICAL JOURNAL of February 21st (p. 358). The four openers (Dr. Leonard Williams, Lieut.-Colonel R. McCarrison, Dr. W. Cramer, and Dr. G. M. Findlay) gave each an epitome of his previous contribution.

The PRESIDENT remarked upon some "wise words from a wise old man" which had appeared in the *Times* above the signature of the late Sir Clifford Allbutt on January 6th last. Sir Clifford had written to support the advocacy of Professor Noël Paton for a richer flour, which, he said, would have advantages from the point of view of health, as well as the agreeable flavour which promoted digestion, and in the course of the letter he had asked whether any food could be more insipid than the present blanched loaf. He had gone on to say that vitamins were elusive bodies, but of their potency there could be no doubt, and it was probable they were eliminated with the offal. It was sometimes said (Sir Clifford had added) that any dietetic virtue which might be rejected in the bread was secured from other sources, but this seemed to him a chancy way of dealing with the staff of life.

Vitamin Deficiency and Gastro-intestinal Infection.

Dr. WILLIAM HUNTER said that he had been greatly impressed by the exceptionally clear presentation of the subject by the opening speakers. What had appealed most to him was the pathological basis for the facts which three of them had brought forward. Reference had been made to gastro-intestinal changes consequent upon vitamin deficiency, to changes in the lymphoid tissue, and to the striking aplastic changes produced in the bone marrow. The changes described as atrophy of the lymphoid tissue and lymphopenia had particularly interested him. Lymphopenia could go on to such a degree that instead of a total of 2,000 lymphocytes per cubic millimetre they numbered only 400, or 20 per cent. The relation of vitamins to infection seemed to him a point of the greatest importance. Colonel McCarrison had shown how, consequent upon the withholding of vitamins, the resistance was lowered, more especially to any infections present in the intestinal canal, and he had illustrated his remarks by reference to amoebic dysentery, where the infection, which had been present in a harmless form, was, so to speak, wakened up into virulence when the vitamins were deficient. This failure of resistance seemed to the speaker to suggest that the pathological changes were not the result directly of the vitamin deficiency, but, in all cases, of infections, among which, to his mind, the streptococcal infection was the most prevalent, and potentially the most pathogenic, in the human subject. From his own familiarity with pathological conditions, he fully supported the view taken by the openers as to the great importance of vitamin deficiency in favouring infection, and endorsed the arguments put forward by Colonel McCarrison in particular, that vitamin deficiency was a great factor in the causation of common intestinal disorders of many different kinds, seriously hampering nutrition and assimilation, and diminishing the resistance of the intestinal mucosa through the virulence of the pathogenic organisms in the tract, amongst which the streptococcal must, in his view, be considered the most important. The important thing to consider was the mischief which vitamin deficiency was doing in their own population, especially among children and young persons.

The Theory Challenged.

Dr. ROBERT HUTCHISON agreed with Dr. Cramer that the use of the term "vitamin" must be limited for the purposes of the present discussion to the three accessory food factors, A, B, and C. If it was extended, as Dr. Leonard Williams suggested, to mineral salts, catalysts, enzymes, and chlorophyll, not to say violet rays and electricity, the result would be hopeless confusion. When one was asked to believe that a deficient supply of these specific vitamins in the diet was a cause of widespread disorders of health, it had to be remembered that the evidence which had been brought forward by the openers of the discussion in support of such a proposition was mainly experimental. It was very difficult to be sure that disturbances of health in animals fed on avitaminous diets were due solely to the absence of vitamins. Such diets were usually very abnormal in other directions as well. Some of them were "synthetic" diets; others—as one of the speakers had admitted—were deficient in proteins of high biological value, or had no proper balance of inorganic salts. Colonel McCarrison stated that his monkeys were taken from the Madras jungle and fed on an autoclaved diet, and that in these circumstances they developed various gastro-intestinal disturbances. But suppose the position reversed, and that the investigator was turned loose in the Madras jungle, and fed on a diet of raw fruits and vegetables—a diet rich in vitamins—was it not possible that in such circumstances he might also develop "a severe intestinal flux"? Apart from this, however, and granting for the sake of argument that the disorders mentioned were really due to deficiency of vitamins and nothing else, was there any real reason to suppose that comparable disorders were being produced to any extent from a similar cause in the ordinary community? The speaker doubted it; indeed, he simply did not believe it. He entirely agreed with Dr. Cramer that one could draw no hard and fast line between specific and non-specific disturbances of health due to vitamin deficiency, but that the former were only the final links in a pathological chain of which ill defined disturbances were the beginning. But it seemed to him incredible, if, as the protagonists of the theory would have others believe, large numbers of persons were suffering from the early and non-specific disturbances, none of them ever reached the final link of the chain or exhibited the specific disturbance in its full-blown form. That this was true, in this country at least, could not be denied. He had himself, in twenty-five years' experience at the London Hospital, never seen a case of adult scurvy nor of beri-beri, unless imported from the East. Yet they were asked to believe that a deficiency of the antineuritic and antiscorbutic vitamins in the diet was an important cause of vague ill health in the community! One might as well be told that in a community in which poverty was widespread no one ever went bankrupt. This was particularly true of vitamins B and C. With regard to vitamin A, the case was a little different. Deficiency of this factor did not so much culminate in the production of a specific disease like beri-beri or scurvy (he regarded the case for rickets being a deficiency disease as still *sub judice*), as in interference with growth and development and with the power of resistance to certain infections. That impaired growth or low resistance to infections might sometimes be due to deficiency of vitamin A it was difficult to disprove, but he thought there was more evidence that when such disorders occurred in any class of the community they were due to a deficient total calorie value in the diet during the years of most rapid growth, rather than to deficiency of a vitamin which, after all, was so widespread in foodstuffs and so resistant to the effects of cooking as vitamin A. The disease xerophthalmia, which was known to result from a deficiency of this vitamin in the diet, was, after all, a rare one in this country, and he could not help thinking it would be commoner if the diet was really lacking to any extent in the fat-soluble vitamin. This was the true inference from the Denmark experience referred to by Dr. Cramer. The President had already quoted a wise English physician, and he, in conclusion, would quote a wise American one—Professor Emmett Holt, in his book *Food, Health, and Growth*:

> "The physician can fall into no greater error than to assume that vitamin deficiency is the chief cause of all chronic nutritive disorders; just as not very long ago these were all referred to auto-intoxication. . . . The use of vitamins without definite indications will be popular for a period, but like other fads it will pass. With time and further investigation their true place will be determined."

The Vitamins and Tuberculous Infection in Animals.

Dr. M. J. ROWLANDS reported on some experiments carried out on a large scale on an animal very much akin to the human being—namely, the pig. He claimed that he had been able by proper feeding to eliminate tuberculosis

from herds which, as shown by *post-mortem* examinations, were full of tubercle. He had fed the animals on food known to be rich in A, B, and C vitamins. Similarly with cows, if they were not fed on a vitamin-rich diet bovine tuberculosis was certain to increase. He had been able to eliminate tuberculosis in cattle by feeding them on a diet known to be rich in vitamins A and B. He kept his animals out of doors, but this did not suffice to prevent tuberculosis—he had to give them vitamin-rich diet as well. As a consequence of this feeding not a single tuberculous animal was to be found on his farm. In certain experiments on full and deficiency diets in pigs, the result of the examination of the stools had shown quite clearly that animals fed on a vitamin-full diet could absorb more nourishment from their food; they did not pass so large an amount of undigested food as did animals whose diet was deficient in vitamins.

Terminal Stage of Vitamin Deficiency.

Dr. F. PARKES WEBER said that, like Dr. Hutchison, he had seen many people in the out-patient class in the East End of London, and in his experience the terminal condition of vitamin deficiency did arrive. It arrived very often in the form of tuberculosis or of various acute infections. The people whom he had seen in his work as physician to the German Hospital, which covered a large area of the East End, might be roughly divided into two classes. The first were patients with digestive disturbances—disturbances connected with visceroptosis, mucomembranous colitis, and similar conditions, all of whom, without exception, suffered from constipation. In this class the terminal stage arrived in the form of death from tuberculosis or from various acute infections. The second class consisted of men, and sometimes women, of the muscular and corpulent type, who put on an enormous amount of fat, and in their case the terminal stage only too often was cerebral haemorrhage and arterio-sclerotic disturbances. This second class had excess of food, and probably sufficient vitamins; they did not suffer from the symptoms of avitaminosis. But there was little doubt that vitamin deficiency was a factor in the disorders of the first class.

Recruiting Statistics.

Dr. H. SCURFIELD was also of opinion that there was plenty of evidence of widespread derangements of health which might be due to vitamin deficiency. Was it not a fact that practically the whole nation suffered from constipation, resulting in fortunes for the vendors of patent medicines? Also, were not great numbers of the recruiting failures during the war to be assigned to rickets in childhood, rickets being caused, as there was much evidence to show, by defective diet? Recruiting failures were not limited to the war period. The figures for a recent year showed that among 80,000 men offering themselves as recruits for the army, 50,000 had to be rejected.

Animals on Autoclaved Diet.

Mr. ASLETT BALDWIN said that Dr. Hutchison had quoted one of Colonel McCarrison's experiments—that with the Madras monkeys—but had not told the whole story. He had said that the monkeys fed by Colonel McCarrison on the autoclaved food developed intestinal flux, but he had not added that other monkeys, similarly taken from the forest and kept and fed under identical conditions except that the food was not autoclaved, remained perfectly well. With regard to the absence of scurvy and beri-beri in this country, might not this be due to the fact that, although large numbers of the population did not get enough vitamins, it would be difficult to find a person who was absolutely deprived? He had discovered an interesting fact while feeding goldfish—that goldfish which for eight months had been fed only on crumbs of wholemeal bread remained well and vigorous, while other goldfish which had been fed on the crumbs of white bread had all died.

The PRESIDENT mentioned that at Midhurst Sanatorium it had been noticed that when patients left the tables sparrows came through the open windows and helped themselves, but that while these birds would eat as plentifully as might be of butter, they would not touch the margarine which took the place of butter during the war.

Openers' Replies.

Colonel R. MCCARRISON, in replying to the discussion, took up the remark of one speaker on the relation of vitamin deficiency to cancer as found in native races. What he himself had seen with regard to cancer, and what he had stated elsewhere, was that cancer and chronic gastro-intestinal diseases were generally very uncommon amongst certain races in the extreme north of India where the diet was well balanced and rich in vitamins. He had not generalized with regard to this, because his experience did not go beyond those particular races. Cancer was, he understood, quite as common among the people of Bengal, where the food was very faulty, as it was in this country. It was not a question of civilization as against want of civilization, or of native races as against Western races. What was of importance was that food should be well balanced and rich in vitamins and other essential substances, and he also thought that in the present state of knowledge or of ignorance, it would be as unwise to disregard the possible action which faulty food might have as a predisposing cause of cancer as to assert at the present moment that faulty food was the cause of cancer.

Dr. CRAMER said that Dr. Hutchison had really questioned the whole basis of the vitamin conception; he had said that the effects found in the experiments might be due not only to vitamin deficiency, but equally to other deficiencies. But the whole basis of the experiments was that everything else that was necessary was given to the animals—protein, fats, carbohydrates—in proper proportion; everything was given except these hypothetical substances, and yet the animals died. When a small amount of butter fat or yeast was added a rapid change at once came over the experimental animal. Dr. Hutchison had said that he did not see the terminal stages of this condition. But, surely, if the clinician saw an undernourished child who developed pneumonia he would describe the terminal stage as pneumonia, and so on. As to the Danish experience which the speaker had cited in his original paper, Denmark was an agricultural country; its main industry might be said to be the production of vitamin A, yet deterioration could be produced in the general health of a large population because too much of this vitamin A was being exported. Were not the same factors operating in this country? He protested that the fact that cases of beri-beri were not discovered here was no evidence that the whole population got a sufficiency of vitamins.

Dr. FINDLAY referred to Dr. Hutchison's statement that he had never seen a case of scurvy in an adult. The speaker was not a clinician, but in his very short course of medicine to get a degree he saw two cases of scurvy, not, indeed, in England, but in the country from which both he and Dr. Hutchison came (Scotland). A few years ago, also, he had the opportunity of investigating the effects of vitamin deficiency in an industrial school not far from Edinburgh. In this school, from 1902 onwards, there had been cases of very acute pneumonia; a boy would go down with an attack which perhaps ended fatally within twenty-four hours. In 1920, after the last outbreak, he went down and investigated the school. On paper the diet was excellent, but the method of cooking was unsatisfactory. To save expense the whole of the food was put into large cauldrons, the lids of which were screwed down, and the food was allowed to stew under pressure for three or four hours. On investigating the medical history of the school one found, in addition to the pneumonias, that there had been, also from 1902, cases of conjunctivitis—or so they were put down in the records—very chronic, and not to be cured by washing out the conjunctival sacs in the ordinary way. These two conditions—the conjunctivitis and the pneumonia—were practically the only conditions from which the boys seemed to suffer. On his recommendation the Scottish Office sent down orders for cod-liver oil and raw swede juice to be given, and since then no new cases of pneumonia had occurred. He also related some particulars of experiments on rats and guinea-pigs, all of them inoculated with tuberculosis, but some of them placed on a vitamin-deficient diet, and others not. The animals on the faulty diet died much more rapidly from tuberculosis than did those which had a sufficiency of vitamins.

OXALURIA.

AT a meeting of the Medical Society of London held on March 23rd, with the President, Dr. EUSTACE M. CALLENDER, in the chair, Mr. L. BATHE RAWLING opened a discussion on oxaluria.

Mr. Rawling apologized for being in the position of opening a discussion on a subject which was medical in so many aspects, and he proposed to confine himself to the surgical side of the question. He had inquired among surgical colleagues, but he had obtained little information, although oxaluria was a condition which surgeons should bear in mind when confronted with certain symptoms. Mr. Rawling then dealt with the abdominal manifestations sometimes associated with oxaluria. He described the case of a house-surgeon who suddenly presented all the appearances of an acute intestinal obstruction, with a distended abdomen, vomiting, and absolute constipation. A laparotomy was performed, but nothing abnormal, save very distended intestines, was found. The patient made a rapid recovery, however, and the history showed that he had suffered from attacks of haematuria in the past, and some time after this attack of abdominal symptoms he passed an oxalate calculus. It had been noted, in reference to the urine in this case, that oxalate crystals were present, but their significance had not been appreciated. Two points of interest arose from this case: the patient stated that he did not feel as ill as he would have expected with acute intestinal obstruction, and, secondly, morphine, which had been given for the relief of pain, had undoubtedly helped to produce the abdominal symptoms. Mr. Rawling had seen similar cases since this one, but never so acute. He believed that the milder abdominal symptoms were due to the flatulent dyspepsia frequently associated with the condition of oxaluria. Reflex stimulation from the kidneys and ureteric tract might lead to inhibition of peristalsis of the intestine. The administration of morphine would further exaggerate such symptoms of intestinal obstruction, and thus error might arise if examination of the urine was omitted in such a case. The speaker then referred to a case of uraemia which had presented symptoms of subacute intestinal obstruction; such a case was related to the oxaluric cases referred to previously. With reference to the occurrence of oxaluric haematuria, the presence of crystals and blood in the urine, and the symptom of pain, frequently suggested the presence of a calculus. The haematuria caused by oxalates was sometimes painless, or, on the other hand, might be associated with severe colic and bladder symptoms. He referred to the case of a physician who had an attack of haematuria following the eating of too many strawberries. This, he found, could be prevented by eating duck and green peas at the same meal, for peas were apparently rich in magnesia and abolished the deleterious effects of the fruit! Mr. Rawling finally dealt with the question of a urethral discharge associated with oxaluria. Such a discharge varied from a mild glueing together of the lips of the meatus to a mucopurulent discharge, and was often mistaken for gonorrhoea. Vesical and rectal tenesmus might also occur. A microscopic examination of such a discharge would reveal the cause.

Sir WILLIAM WILLCOX said that he proposed to deal with the medical aspects of oxaluria. He had been struck with the remarkable absence of any references to this subject in recent literature, as he considered it one of great importance from the medical as well as from the surgical point of view. Oxalic acid was, he said, a normal constituent of the urine: an adult in health passed about 15 to 20 mg. of oxalic acid in twenty-four hours. If this quantity rose to about 30 mg. then this oxaluria became pathological. Under normal conditions blood contained this substance in the form of calcium oxalate, probably in a colloidal state, and crystals of calcium oxalate excreted in the urine were small, colourless, and usually of the "envelope" shape, the "dumb-bell" and "disc" forms being rarer and always in an alkaline or amphoteric urine. If the urine was acid as a result of the presence of sodium acid phosphate, calcium oxalate was usually in solution, but if above 20 mg. was being excreted in the twenty-four hours it would crystallize out, and even when present in normal quantities in slightly acid or alkaline urine it would likewise be deposited. In cases of oxalic acid poisoning the acid might be present in the urine in a free state, as it also occurred in the liver, kidneys, and spleen, leading to a decalcification by combining with any calcium present. In chronic oxalic acid poisoning a condition similar to rickets might be brought about by such a decalcification process. In these cases the renal tubules, but not the glomeruli, were found to be full of crystals. In normal conditions the blood contained amply sufficient calcium and magnesium to deal with all the oxalic acid absorbed. Oxalic acid could be formed by the oxidation of carbohydrates, and also by the oxidation of proteins, while it was probable that it could also be produced from fats, since the administration of glycol to a normal person would greatly increase the amount of oxalates in the urine. A diet of milk and sugar alone would give rise to oxaluria, and a case had been recorded where a diet consisting of milk and sherry had also given rise to this condition. Excessive oxaluria was frequently associated with gastric dyspepsia or with colitis, and in both cases was due to the excessive fermentation of carbohydrate which occurred in these conditions in the gastro-intestinal tract. Lazy people, living in stuffy rooms under defective hygienic conditions, were liable to get oxaluria. An idiopathic form of oxaluria had been described, due to some inborn error of metabolism. The question of foodstuffs containing oxalates was important, although there appeared to be a great difference of opinion on this subject. About 10 per cent. of the calcium oxalate ingested in food was excreted in the urine, and if a person was subject to oxaluria from defective metabolism such an excess might give rise to a greatly increased output. Foods containing oxalic acid, usually as calcium oxalate, included spinach, rhubarb, sorrel, beetroot, dried figs, certain beans, tea, cocoa, chocolate, pepper, and adulterated coffee. There was a constant fight going on in the body between the calcium and magnesium elements for possession of oxalic acid. Hence if there was a lot of magnesium ingested it grasped the oxalic acid and soluble magnesium oxalate was formed, and "oxaluria," in the sense of attacks of pain due to the insoluble calcium oxalate crystals, did not occur. Hence it was important in these cases to choose food which was rich in magnesium and comparatively poor in calcium, such as meat, flour, nuts, apples, peas, and potatoes, while foods in which the reverse was true and which should be avoided included milk, eggs, spinach, cauliflower, cabbage, grapes, sorrel, strawberries, asparagus, and pineapple. The speaker thought that the tomato had been much maligned, since its content of oxalic acid was very small. Symptoms of oxaluria were frequently absent in many cases where a deposit of oxalate crystals occurred. In hot climates, where the urine frequently became concentrated, attacks of pain similar to renal colic often occurred, and were probably due to oxalate crystals. Oxaluria might be associated with a condition of mental depression and hypochondriasis with "real crisis of neurasthenia" which had long been known to be due to oxalate crystals. In treating this condition attention must be paid to the intestinal and gastric dyspepsias. Gastric lavage, doses of aperients such as Epsom salts, general hygienic treatment, with diet along the lines already indicated, were all important, and water should be freely drunk, attention being paid to the decalcification of hard water in districts with hard water supplies.

The PRESIDENT said that he had been struck with the frequency of oxalate crystals in the urine. He pointed out the danger of jumping to a conclusion because of the presence of such crystals. Dr. H. A. DES VOEUX thought it would be more correct to say that oxalate crystals were common in abnormal urines of whatever type. Any condition leading to the production of pus in the renal passages would give rise to an increase of oxalates in the urine. He recounted a case of oxaluria in a man of 80 associated with nightmares. Dr. T. J. HOSKIN inquired if there was any relation between oxaluria and orthostatic albuminuria. Dr. F. PARKES WEBER asked whether it was not the case that the presence of blood in the urine from any cause gave rise to an increased amount of oxalate crystals.

Mr. J. E. H. ROBERTS said he had been intending to ask whether the "tomato gall bladder" of certain American writers was due to oxaluria, but apparently the tomato had been freed from blame in this respect.

Sir WILLIAM WILLCOX, in reply, pointed out that the presence of albumin or blood in the urine might, by its physical action, induce the crystallization of the oxalates. He thought the occurrence of oxaluria in neurasthenics was due to their intestinal toxaemia.

Mr. RAWLING also replied briefly.

INFANTILE MORTALITY.

A MEETING of the Section of State Medicine of the Royal Academy of Medicine in Ireland was held on March 13th. The President, Dr. N. M. FALKINER, quoted Newsholme's dictum that infantile mortality was "the most sensitive index of social welfare and sanitary improvement which we possess." He referred to the decline in the infantile mortality rates of England and Wales from 158 in 1876 to 69 in 1923, and mentioned the result of Dr. Wheatley's inquiry, which attributed this decline to child welfare centres and maternity visiting.

Dr. BRIAN CRICHTON, in a paper on infantile mortality, stated that the country was to be blamed for neglecting its greatest asset, the child. The responsibility of the State consisted in the suppiy of financial aid to municipal and other bodies for the maintenance of welfare centres, the feeding of school children, and the like. He compared the infantile mortality rates of various English towns with that of Dublin (125). To produce a healthy child, healthy parents, healthy surroundings, and good food were necessary. The greater portion of the centre of Dublin was hygienically bad and to be condemned. No more than 50 persons should be allowed to live on each acre, but in some wards in Dublin the number per acre was as high as 117, or even 138. No factory could exist under the conditions which were forced upon the infant population. The first and greatest evil to be remedied was the housing question. The Government had done something, but much more remained to be done. Dr. Crichton thought that the penalties for the sale of dirty milk were negligible compared with the harm inflicted on children by dirty milk. The mothers, in order to nurse their children, required good food; the cost of this was far too high, apart from the economic questions due to unemployment. He thought there was need for an inquiry into the prices charged for such foods as meat, butter, eggs, and milk by the middleman. The influence of sunlight and air on health was so well established that the need for more parks and open spaces was evident. Dr. Crichton then outlined a scheme for the improvement of child life in Dublin. Use should be made of the existing maternity hospitals in Dublin to which mothers had been accustomed to go for advice. Attached to these there should be welfare centres, both ante-natal and post-natal, where the mothers could be advised as to the health and feeding of their children, and food could be supplied at as near cost price as possible. Almoners and specially trained district visitors could go from these to visit the infants in their homes. These centres would also be very useful for the training of students and nurses. He pointed out the need of special schools for mentally deficient children, and also of open-air schools for delicate children. He added that the death rate among illegitimate children was six times that of legitimate children, and thought that more control should be exercised over women receiving nurse children.

Sir JOHN MOORE said that the infantile mortality under 1 year of age in 1923 was 66 per 1,000, and was much higher in boys than in girls, the male infant being probably more fully developed at birth than the female. The death rate among female children was 60 per 1,000, and among male children 73 per 1,000. It was the bounden duty of every mother to feed her child during the first nine months of the child's life, but this duty was very often disregarded. Recently there had been much use of milk which was contaminated, or preparations of milk which were probably very often poisoned. Child welfare in Dublin had made great progress, largely owing to the work of district nurses. Remarkable results had been obtained at the Cheeverstown Convalescent Home in the case of children between the ages of 3 and 5.

Professor J. W. BIGGER compared infantile mortality in Ireland with that in England. In the Free State, in 1923, this was 66 per 1,000, while in England and Wales it was 69 per 1,000. In the year 1915 the mortality in Ireland was 92 per 1,000, so the infantile mortality rate had been greatly reduced since then; in that year in England and Wales it was 110 per 1,000. In 1904 in Ireland it was 100 per 1,000, and in England and Wales 145 per 1,000. If this rate of reduction continued England and Wales would soon have a lower infantile mortality rate than Ireland. He felt that Ireland at present was too contented with her position; because it was said that the Irish infantile mortality rate was much less than anywhere else, nothing was being done to reduce it further. It had been recognized in England and Wales since 1904 that the rate there was too high, and successful steps had been taken to bring it down. If this had been done in Ireland, the rate in 1923 would have been only 47 and not 66 per 1,000. Whooping-cough caused 3 deaths per 1,000 births, probably because children did not get proper nursing in the latter part of this illness. Bronchitis and pneumonia also accounted for much of the infantile mortality, again due, probably, to the lack of good nursing. Diarrhoea, enteritis, and convulsions were very often caused by bad feeding. Breast-feeding would prevent many deaths. Premature birth was the cause of about 6 deaths out of every 1,000 births, and if Dr. Crichton's scheme of establishing pre-natal schools in connexion with the maternity institutions in Dublin could be brought into existence many of these deaths would not occur. Housing in Dublin was still deplorable, but he hoped that at last something was being done to make it better. To bring up children healthily in a tenement house was very difficult, and he agreed that it was necessary to provide open-air schools and more sunlight for children. The rural child had a better chance, even during the first seven days of life, than had the urban child.

Dr. R. H. MICKS referred to the large number of sickly, wasting children in general hospitals; several months were required to effect any improvement in their condition, and bad cases of marasmus took a year to cure. He referred to the danger of the "tuberculosis houses" of which there were so many in Dublin, and the number of children suffering from tuberculosis, owing, probably, to the unhealthy state of their surroundings. This was not the fault of the parents, for no better houses were obtainable. In some families nearly all the children were suffering from tuberculosis; very few patients were willing to go to sanatoriums, and they came home very quickly. He thought that the question of improving sanatoriums should be taken up. There would be no definite improvement in the number of cases of tuberculosis amongst the poor until better housing conditions were established. He thought that the "nursing out" of children should be avoided if possible, as a great many infantile deaths were due to deliberate starvation under these conditions. He referred to the difficulty in procuring good milk, especially among the poor.

Professor J. T. WIGHAM said that it had been asked why infantile mortality should be avoided, since an easy way of limiting the population was to allow children to die soon after birth. It had been pointed out that at present there was a great excess of unskilled labour, and that many town-born children grew up to become unskilled labourers. The answer to such a question was that infantile mortality was an index of children's disease, and that a great many children who did survive from disease in childhood were unfitted by it to develop into healthy citizens. Great efforts were being made to improve the housing conditions in Dublin, and the help of every citizen was required. He referred to the work which was being done by Mr. Hall, and also by Messrs. Guinness. The Dublin Corporation was building very extensively on the banks of the Liffey, above Island Bridge; and Mr. Hall had stated that if he could procure £10,000 all the houses would be built before the end of June.

Dr. P. DE BURCA said that bad housing and bad food (especially milk) were not the causes of infantile mortality, but were rather the symptoms of a disease. Decent housing and food would never be obtainable so long as the absolute necessaries of life were produced for profit and not for use. Great care was taken to see that the water was pure, and that contamination was avoided. If that was done with water, why should it not be done with milk and bread? Before the infantile mortality was improved it would be necessary to improve the conditions under which the working man lived, and to enable him to get a living by means which did not bring him into competition with his fellow working man.

Dr. KENNEDY CAHILL drew attention to the appalling death rate amongst children who were "boarded out." The population in France was stated to be low, because contraception was in vogue and the people decided not to have large families. He believed, however, that the birth rate there was as large as it was in England, but the death rate in France during the first few months was so high that the population did not increase. He thought that a bonus was given to every child that was born in France; if this money was given to pre-natal clinics it would be used for a much better purpose.

INSANITY AND DIVORCE.

AT a meeting of the Medico-Legal Society, held in London on March 17th, with Lord Justice ATKIN, the President, in the chair, Dr. NATHAN RAW read a paper entitled "Three suggested grounds for divorce: (1) hopeless insanity; (2) chronic inebriety; (3) penal servitude for life."

Dr. Raw said, while he was not in favour of weakening the marriage tie in normal conditions, circumstances often arose unfortunately where it was necessary to consider the desirability, urgency, and importance of making some alteration in the present divorce laws, in the interest both of the State and of the children, and more directly in the interest of the parties immediately concerned. The Royal Commission on Divorce, appointed in 1909, although divided on the cardinal points, was unanimous in the findings that nullity of marriage should be decreed in cases of (*a*) unsound mind, (*b*) epilepsy and recurrent insanity, (*c*) venereal disease. In April, 1920, he had an opportunity of pressing these three grounds in a debate in the House of Commons, but, although they were generally accepted, the motion was lost by forty-one votes, as the House was not prepared to accept the entire majority report. In Great Britain and Ireland there were 150,000 persons certified as insane under the Lunacy Acts, and, of that number, almost 50,000 were suffering from dementia. Dementia was incurable, and he thought that this condition should be considered a ground for divorce. Between 20,000 and 30,000 of these people were married, and in a very large number of cases the husband or wife might not know his or her spouse: in fact, a great many of them could not realize that they were married. He had never known a case of dementia to recover after it had lasted five years. After that period elapsed, he suggested that the patient should be examined, at the request of his or her spouse, by a body of medical experts, who would then be satisfied as to whether or not the case was curable. If incurable, then it might be made a ground for divorce. These cases were particularly hard upon the poor. Another form of mental disease, epilepsy, should be a ground for prohibiting marriage to the sufferer.

Regarding habitual drunkenness, with which he associated the ground of hopeless addiction to drugs, he said it was proposed that, in such cases, after a separation order had been granted and had been in force three years, and the drunkenness still continued without any sign of improvement, then the other spouse might petition for divorce. The ruin of the children of a drunken father or mother could often be traced to the evil of parental example. It was authoritatively stated that 90 to 95 per cent. of habitual drunkards died drunkards, and that if the state of drunkenness continued for three, four, or five years without improvement there was practically no hope of permanent cure.

The question of imprisonment for felony was more difficult, and different countries took varying views on the subject. The Commission was in favour of divorce for the spouses of felons whose death sentence had been commuted. He had the greatest respect for those who supported the ecclesiastical view that marriage was an indissoluble tie, but he thought that the three grounds he had mentioned were in a different category. They could not be foreseen at the time of the marriage, and one party should not be compelled to suffer for life for something for which he or she was in no way responsible and which had rendered married life impossible.

In the discussion which followed, Lord Justice ATKIN said, whilst they all agreed that it was important to the State to maintain, as far as possible, family ties, there were cases where it was necessary that the tie of marriage should be dissolved, otherwise family life was discouraged. If insanity for which the individual was not to be blamed was admitted as a ground for divorce, then there were other grounds which were equally not the fault of the individual which would also have to be considered. The proposition ought not to stop at insanity. Then, as to the ground of a commuted death sentence, there were, from the point of view of matrimonial life, more serious offences, such as indecency, attempted rape, and blackmail. Then again, while incurable insanity was certainly a cause which would make a tremendous appeal to everybody, even there one would like to know whether the medical profession was quite satisfied that it could always with certainty say that the insanity was incurable. Chronic inebriety seemed to him to present even greater difficulties. He himself knew of cases where apparently incurable drunkards had in fact been cured; and the existence of the family tie would be the great motive in many cases for curing oneself of drunkenness.

A MEETING of the London Association of the Medical Women's Federation was held at the Elizabeth Garrett Anderson Hospital on March 10th, Miss M. CHADBURN in the chair. Dr. DOROTHY HARE, in a paper on the value of the electrocardiograph to the physician and surgeon, said that the apparatus she used at the Royal Free Hospital was similar to the original Waller instrument, invented in 1887, with the exception that the capillary electrometer was now replaced by the Einthoven string galvanometer. While no mechanical means of investigation should ever replace careful clinical examination, there did undoubtedly exist cases with few physicial signs, in which the additional information supplied by the electro-cardiograph was a weighty factor in the diagnosis. She referred to the ease of obtaining a reading without discomfort to the patient, the equipment at the hospital making a complete examination possible with the patient in bed, if necessary. She then showed a series of interesting diagrams and records of clinical cases, selected mainly to bring out the special points which this method of investigation elucidated. The normal tracing was by no means simple, and the limits of variability of the normal had not yet been fully established. Cases illustrating the value of the tracing in the determination of the condition of the myocardium were described. It was here that the electro-cardiologist could be of help to the surgeon and obstetrician, since a definite opinion as to the patient's fitness for operation could be given from a study of the muscle element in the curve. A series of cases showing lesions of the conducting mechanism were then described. A short discussion followed, in which Dr. M. E. DALBY, Dr. M. DOBBIE, Miss ALICE BLOOMFIELD, Dr. E. H. LEPPER, Mrs. FLEMMING, and Miss M. CHADBURN took part.

AT a meeting of the Chelsea Clinical Society at St. George's Hospital on March 17th, when the President, Dr. GORDON LANE, was in the chair, Dr. LEONARD WILLIAMS gave an address on the diseases of old age. He said that constipation and errors in diet, in the way chiefly of excess, were in great part responsible for senile troubles. He described the ductless glands and the control they exercised, and expressed the opinion that the adrenal was at fault in many cases of disease in the old man and woman. Mr. KENNETH WALKER thought that in some cases ligature of the vas deferens was a useful operation, but that grafting of the testicle did a great deal of good. Mr. IVOR BACK said that he could confirm this of about 30 per cent. of his cases, but in a great many grafting had not fulfilled expectations. Mr. RALPH THOMPSON related some results of dissections of the ductless glands.

Reviews.

MEDICAL HISTORY OF THE WAR.

THE fourth volume[1] of the *General History of the Medical Services* during the great war is the last of the series, and thus brings the formidable task undertaken by Sir WILLIAM MACPHERSON to a close. In its main features it is identical with its predecessors, but differs from them in the multiplicity of the subjects considered and in the fact that it bears on its title-page, in addition to the name of Sir William Macpherson, that of the officer who acted as his assistant throughout the whole undertaking. This is Major T. J. MITCHELL, D.S.O., R.A.M.C., to whom also the authorship of certain chapters in the present volume is definitely assigned in its preface. Leaving out of account a large number of sketch maps, charts, diagrams, tables, and photographs, the text runs to a little under six hundred pages, which are made to cover the operations on seven widely separated fronts, and also a record of all the means—from hospital ships to sledges—for the transport of the sick and wounded employed anywhere during the war.

The Mesopotamia operations receive the lion's share of attention, ten chapters and some 238 pages being devoted to them. The share is even larger if the account of the work done in North-western Persia, which was an offshoot of that in Mesopotamia, be included. Nor does the largeness of this share seem remarkable when it is remembered that the Mesopotamia operations lasted practically four years, and from start to finish were full of incident and occasion for effort in the way of frequent contact with the enemy, hazardous movements of troops, very difficult transport, and the constant presence of unavoidable causes of disease. Included is an account of the siege of Kut-al-Amara, and the whole chapter, quite rightly, exclusively devoted to it is perhaps the most attractive in the whole volume. As is not always the case elsewhere, the reader at once feels that he has a clear idea of the nature of the country in which the operations took place, of the problems by which the medical service was faced, and of the difficulties encountered in meeting them.

The next largest share, four chapters and about 102 pages, goes to the operations which originally had Salonica as their base, but which eventually moved or extended to the Black Sea and the Caucasus. It is less easily read than the other, but this is perhaps natural since the force engaged was in the later stages split up into so many different parts and had its affairs complicated, more particularly on the medical side, by having to deal with Greek, Serbian, and eventually Russian sick and wounded. These four chapters are, like the rest of the volume, well supplied with photographs and sketch maps, but not all the latter are adequately explained either in the text or by the underlettering. Many generations, for instance, of students at the Royal Army Medical College are probably destined to be puzzled by a sketch map of an unnamed brigade area which shows a field ambulance main dressing station in a line of regimental aid posts. The long-drawn-out and somewhat desultory warfare over a vast area in East Africa with disease as the chief enemy also receives four chapters, but these are somewhat shorter. The rest of the operations described—namely, those in the scorching Aden Protectorate; in North Russia amid ice and snow; and on the Gallipoli Peninsula—are each given one chapter apiece; in the last named case a long one of some sixty pages.

Finally comes a well illustrated account of all the methods of transport employed for strictly medical purposes on the various fronts held by British troops at one time or other during the war. Apart from its other merits, this chapter is intrinsically illuminating in regard to the diversity of conditions with which the medical services had to contend. Included in the chapter is a useful description of the boats, barges, and craft used on rivers, canals, and lakes for moving the sick and wounded. In France the inland waterways were so utilized, not of necessity as on some other fronts, and it may be doubted if those who played an executive part in barge transport would fully share the favourable opinion that seems to have been formed by those more highly placed. The Italian overhead cable or Teleferico system of bringing wounded persons or goods from elevated situations also receives notice. It is said to have been occasionally used by the medical service of the Italian Expeditionary Force for the transport of severely wounded men, but according to our information this is a mistake. Only one of the three fronts successively occupied by the British in Italy lent itself to the system, and here, apart from the intrinsic drawbacks of the method, any temptation to use it was negatived by the fact that the D.M.S. had placed an advanced operating centre, provided with a hundred beds, just under the rear edge of the mountain and alongside a first-class road devoted solely to downward traffic.

At several places in the volume reference is made to the dispatch of officers specially charged to bring about improvements or reforms in the medical situation on certain fronts and to the good results that ensued. It is to be hoped, however, that readers will not assume that such missions necessarily connote incapacity on the part of medical officers already on the spot. The occasion for them can never arise until much experience of local conditions has been gained, and the influence on headquarters of the emissaries concerned is apt to be much more potent than any that the D.M.S. of an army in the field can make sure of being in a position to exercise. However good an administrator a D.M.S. may be, his position is always one of much delicacy. This will be evident when it is remembered that ordinarily he can rely on there being considered by his commander only such version of his views as an intermediary may choose to convey; at all times also the service he commands is dependent for its ability to work at all on the co-operation of other branches, and this may be only grudgingly afforded unless it happens to be known that the D.M.S. has the ear of the commander. Worse still, a D.M.S. may be retained in the position of a convenient scapegoat should things go wrong, but ordered to take up his quarters at such a distance from the centre as to make it impossible for him to form or tender any balanced views at all, or even know what his own units are doing. Arrangements of this kind are, to use a colloquialism, simply "asking for trouble" in the way of undue wastage of man power through preventable disease and for loss of moral through undue suffering of individuals. This is the one clear administrative lesson to be derived from the work of the medical services between 1914 and the end of the war as set forth in the official history whose concluding volume has been the subject of this note. Yet it is a lesson of which the Army Council either remains in ignorance or to which it is unwilling to give heed.

[1] *History of the Great War based on Official Documents.* Medical Services: General History. Vol. IV, *Medical Services during the Operations on the Gallipoli Peninsula; in Macedonia; in Mesopotamia and North-West Persia; in East Africa; in the Aden Protectorate, and in North Russia; Ambulance Transport during the War.* By Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., and Major T. J. Mitchell, D.S.O., R.A.M.C. London: H.M. Stationery Office. 1924. (Demy 8vo. pp. xv + 711; illustrated. 25s. net.)

A GLASGOW MANUAL OF OBSTETRICS.

THE volume styled *A Glasgow Manual of Obstetrics*,[2] by Dr. S. J. CAMERON and a group of his colleagues on the staff of the Glasgow Royal Maternity Hospital, is of considerable interest as a presentation of methods employed in that very active institution, and it will be specially useful to their students. It is perhaps a little brusque in its dogmatism. Starting with the relation between ovulation and menstruation, it says that "the two functions usually occur simultaneously is undoubted." If the word "simultaneous" refers to the moment of rupture of the follicle and that of the onset of the menstrual flow, there is a fairly important volume of opinion ranged with Schroeder, who describes them as alternate. The short introductory chapter on embryology suffers a little from the difficulty of choice between detail that should be stated and that which should be left to recollection, but is probably adequate to the needs of those for whom the authors write.

In the chapter on the physiology of pregnancy one-third is devoted to metabolism and the ductless glands, and shows

[2] *A Glasgow Manual of Obstetrics.* By Samuel J. Cameron, M.B.Glas., F.R.F.P. and S.G., Archibald N. McLellan, M.B.Glas., L.M.Dublin, Robert A. Lennie, M.B.Glas., John Hewitt, M.B.Glas. London: Edward Arnold and Co. 1924. (Med. 8vo, pp. xvi + 573; 214 figures. 21s. net.)

that, while the writers are well aware of the work that is going on in these subjects, they have the usual difficulty in arriving at a definite interpretation. All through the volume they give evidence of keeping in close touch with laboratory work, and they quite naturally refer to the researches that are in progress in Glasgow itself. In the chapter on toxaemias an account is given of the numerous tests which have been proposed for the measurement of acidosis and of the vital functions of kidney and liver, but in deciding for or against induction of labour clinical evidence, including blood pressure, is at present relied on, and a like attitude of open mind is maintained with regard to the various etiological theories. The statement that in the urine in acute yellow atrophy of the liver "crystals of leucin and tyrosin are present" is more interesting as an historical reminiscence of Frerich's initial paper than useful in the diagnosis.

Glasgow Maternity Hospital has a large ante-natal department with twenty-five beds, and it is rather disappointing that the authors have not taken their opportunity of giving a unified sketch of the preventive work that can be accomplished there, especially in the control of position and presentation. On this the improvement of domestic midwifery, which is needed in Glasgow doubtless as well as elsewhere, is dependent. The index gives "Malpresentations, p. 335." There, in the chapter on contracted pelvis, we read only: "*Malpresentations* and *malpositions* are more common than in a normal pelvis . . ." but it is just to the writers to say that other passages occur in which the theme is touched. In the same chapter several pages and three plates from a recent paper by Cameron and Hewitt are devoted to the question of head-brim fit, and raise in the mind a doubt whether, after all, Glasgow doctrine is so far unified as to justify the full implications of the title of the book.

The practical parts of the book are clear, and based on the wide experience of the writers, who also draw on their wealth of material to furnish good illustrations of many conditions of great interest which others may not have met. The diagrammatic drawings of Mr. A. K. Maxwell are clear and emphatic, and the type is good. The proof-reading has been unfortunate. We find "antiflexed" (p. 36), "muscular sucurrus" (pp. 48-49), "urolinin" (p. 184), "saggital" (p. 506), and the famous writer on deficiency diseases has given place to the scion of a new clan "McGarrison" (pp. 30-31). References to original papers are rarely given.

GOLD TREATMENT OF TUBERCULOSIS.

THOSE of our readers who have been following the promising researches which are being carried out in Denmark on the treatment of tuberculosis with gold preparations will be glad to know that a copy of Professor MOELLGAARD'S book, *The Chemotherapy of Tuberculosis*,[3] is available in English. These researches have aroused a great buzz of interest in Denmark (see BRITISH MEDICAL JOURNAL, November 22nd, 1924, p. 961), the echo of which is passing from one country to another. We have commented on this work whenever new information was at hand (BRITISH MEDICAL JOURNAL, November 8th, 1924, p. 870, and January 24th, 1925, p. 176), and we hope to publish in an early issue a paper on the experimental and clinical evidence by Professor Moellgaard himself.

The title of the present book does not describe completely the line of treatment Professor Moellgaard has introduced; its distinctive feature is the destruction of tubercle bacilli by a sodium gold salt, accompanied by a neutralization of the tuberculous toxin liberated from the bacilli by injecting at the same time an antiserum. This salt has for convenience been named "sanocrysin." Warnings have repeatedly been given of the danger which may arise from rapid destruction of tubercle bacilli within the tissues of a living animal: sanocrysin, injected into a tuberculous animal, causes the death of living tubercle bacilli, with the result that the whole system is flooded by the liberated toxin. To neutralize this intoxication Professor Moellgaard has prepared an antiserum, and it is the combined use of an agent lethal to the tubercle bacillus and of protective serum that gives originality to this well conceived method of attack. We read in Moellgaard's book that when sanocrysin is injected into tuberculous guinea-pigs they die almost invariably, showing signs and symptoms of tuberculin shock. Administered to larger animals, such as calves, goats, and monkeys, sanocrysin gives rise to a definite train of symptoms—albuminuria, myocarditis, oedema of the lungs, and fall of body temperature, leading to death. This fatal shock may be warded off by injection of the blood serum of an animal suffering from chronic retrogressive tuberculosis or one artificially immunized. The injection of sanocrysin into a tuberculous animal may be made less dangerous if the protective serum is given earlier, but it does not appear that all upset can be avoided, for fever, nausea, and focal reactions are almost inevitable. More accurate dosage and a larger experience is teaching the Danish workers how these reactions may be lessened.

From what has been said it is obvious that Moellgaard's methods must be employed cautiously in the treatment of human tuberculosis, and no one is more insistent on this than the inventor. The second part of his book gives an account of a large number of cases of human tuberculosis treated in various Danish hospitals and sanatoriums. We cannot summarize these carefully tabulated records, nor would it be just to do so, for the work is still in an experimental stage, so that it is likely to be handicapped rather than advanced by too early definition. Sufficient to say that there is plenty to guide physicians who seek to learn Moellgaard's methods, and that a careful study of these Danish cases should be made before sanocrysin is used in medical treatment, in order to learn which cases are suitable and the correct doses to employ.

The book is lavishly illustrated and arranged in an orderly manner, but loses by the absence of an index.

[3] *Chemotherapy of Tuberculosis.* By Holger Moellgaard, Professor of Physiology; Physician, Royal Veterinary and Agricultural College, Copenhagen. Copenhagen: Arnold Busck. 1924. (6¼ × 9½, pp. 419; illustrated.)

ENCYCLOPAEDIA MEDICA.

WE have recently received the last volume (Tu-Zi and Supplement) of the second edition of the *Encyclopaedia Medica*,[4] the penultimate volume of which we reviewed a few months ago (October 11th, 1924, p. 670). Of the principal articles three are new—those on vitamins by Dr. Marshall Findlay, on the modern treatment of diabetes by Dr. C. G. Lambie, and on respiration by Dr. H. Whitridge Davies. The last two form a supplement to the volume. Twenty-two articles have been rewritten.

The article on the uterus, which is the longest in the volume, consists of five parts, three of which have been rewritten—those on displacements by Mr. G. S. Davidson, on non-malignant tumours by Mrs. Scharlieb and Dr. Louisa Martindale, and on malignant tumours by Mr. Comyns Berkeley. The principal articles on general medicine are those on typhoid fever by Sir John F. Broadbent, pathological changes in the urine by Dr. C. G. Lambie, visceral pain by the late Sir James Mackenzie, and vaccine therapy by Dr. W. H. Wynn. The chief articles dealing with surgery are those by Sir D'Arcy Power on the urethra and venereal diseases, by Mr. J. T. J. Morrison on wounds, and by Mr. R. C. Alexander on diseases and injuries of the wrist-joint. Public health is represented by articles on ventilation and warming by Sir Leslie Mackenzie, on vital statistics by Dr. W. Robertson, and on water by Dr. J. C. Thresh. Among the miscellaneous subjects we may call attention to the excellent articles by Dr. T. B. Hyslop on unconsciousness, by Dr. Robert Knox on *x* rays and radium, and by Dr. H. M. Traquair on the field of vision.

We offer our cordial congratulations to Dr. ALEXANDER GOODALL and his able band of contributors on having successfully terminated a work which is admirably representative of British medicine.

[4] *Encyclopaedia Medica.* Vol. XIII. Edited by Alexander Goodall, M.D., F.R.C.P.E. Second edition. Edinburgh: W. Green and Son, Ltd. 1925. (Roy. 8vo, pp. vii + 671; illustrated. 30s. net.)

NOTES ON BOOKS.

A SHORT time ago we published a note calling attention to the field which exists for medical women in India. The same point is made in a chapter on the healing art in India in an interesting little work by Mr. H. HARCOURT, I.C.S., now on the retired list.[5] He believes that, whatever happens to the Government of India, no political change will ever oust Western medicine and especially Western surgery. The situation of the parda lady in sickness is pathetically helpless. Missionary women doctors and Government women doctors are an urgent need, the supply inadequate; in India it is difficult to train women in medicine for the want of a good general education on which to build. The prospect, Mr. Harcourt holds, is ample for an indefinite number of years. "Whoever else may be repulsed, the lady doctor, and hardly less the trained nurse, are still, and long will be, welcome in India." In these days, when lament is being made of the great numbers of applicants for posts for medical women in this country, at least the more enterprising of recent graduates will surely give some consideration to the sphere of useful work which is open to them in India.

The first volume of the seventh edition of Professor H. OPPENHEIM'S textbook of nervous diseases for practitioners and students[6] has been issued; the last edition was reviewed in the year before the war (JOURNAL, August 2nd, 1913. p. 243). The author died in May, 1919, and the present edition has been revised by four well known neurologists: R. Cassirer of Berlin, K. Goldstein of Frankfort, M. Nonne of Hamburg, and B. Pfeifer of Halle. The bulk of the present volume has been revised by Dr. Cassirer, who is responsible for the chapters on the methods of examination and general symptomatology, diffuse diseases of the spinal cord, peripheral paralysis of the spinal nerves, and nerve tumours. Dr. Pfeifer is responsible for the chapters on systemic diseases of the spinal cord, peripheral paralysis of the cerebral nerves, multiple neuritis and neuralgias; and Dr. Goldstein for the section on the pathology and physiology of the spinal cord. The principal new features of the present edition are the descriptions of war injuries, epidemic encephalitis, extrapyramidal diseases, and the close association between endocrine disturbance and nervous disorders. To judge by this first volume the work has been well brought up to date and will continue to hold its place among the leading textbooks on nervous disorders.

To those whose knowledge of tobacco literature has hitherto consisted of the mistaken idea that Raleigh introduced "the weed" to England, of Calverley's "Ode," and of Kipling's lines "A woman is only a woman, but a good cigar is a smoke," WILFRED PARTINGTON'S *Smoke Rings and Roundelays*[7] will come as a boon and a blessing. For here we learn much in pleasant guise. The introduction of tobacco to Europe, for example, is a feather in the cap of medicine, and lies to the credit of a Spanish physician, by name Francesco Hernandez, who brought samples of the weed from Mexico for the inspection of His Most Catholic Majesty Philip II. About the same time—*circa* 1560—Jean Nicot (whose name is still embalmed in "nicotine"), master of the requests of the French king's household and ambassador to the Portuguese court, purchased at Lisbon some tobacco seed imported from Florida. This he sent to the Grand Prior of France; and, "chiefly by the aid of members of the Church," the habit of smoking was propagated. Even yet it may safely be asserted that the doctor and the parson are the greatest devotees of the weed; though some there be in both professions—and these, heavy-minded men—who would father *Nicotiana* on Old Nick. But the majority of the great pipe band will welcome *Smoke Rings and Roundelays* with avidity as a very mine in prose and verse of all that has been written regarding tobacco. Nay, that curiously white-elephantine article of furniture—beloved of a woman as a gift, in the vain hope that it may lead to tidiness—the "smoker's cabinet" need no longer hang useless on the wall if employed as a handy harbour for this volume; and the tired man, in slippered ease and pipe in mouth, may well double his restful pleasure by pulling it out and perusing its pages.

[5] *Sidelights on the Crisis in India, being the Letters of an Indian Civilian and some Replies of an Indian Friend.* By H. Harcourt, C.B.E., I.C.S.(ret.), B.A., Barrister-at-Law. London: Longmans, Green and Co. 1924. (Cr. 8vo, pp. xi + 118. 3s. 6d. net.)

[6] *H. Oppenheim Lehrbuch der Nervenkrankheiten für Aerzte und Studierende.* Siebente Auflage. Bearbeitet von R. Cassirer, K. Goldstein, M. Nonne, B. Pfeifer. Erster Band. Berlin: S. Karger. (Roy. 8vo, pp. x + 923; 323 figures, 4 plates.)

[7] *Smoke Rings and Roundelays.* Compiled by Wilfred Partington. London: John Castle. 1924. (Cr. 8vo, pp. xvi + 320. 7s. net.)

Messrs. George Philip and Son have republished their well known *Life-size Anatomical Model*.[8] It consists of a figure of the human body lithographed in natural colours on linen cardboard, and opening out in sections to display the blood vessels, nerves, muscles, internal organs, and the skeleton in their correct positions and dimensions. A handbook, supplied with the model, contains a numbered list of the different structures illustrated. The model folds into a stout millboard portfolio measuring 22 by 33 inches, and its portability, as well as the excellence of its general construction, should render it very useful to teachers of anatomy.

We have received the *Proceedings of the Pathological Society of Philadelphia*[9] from January, 1923, to January, 1924. In addition to numerous short clinical notes the volume contains the address of Dr. O. H. Perry Pepper, the retiring president, on metastasis.

[8] *Philips' Life-size Anatomical Model of the Human Body.* London: G. Philip and Son, Ltd. 1925. (Portfolio cover, 22 in. by 33 in. £3 3s. net.)

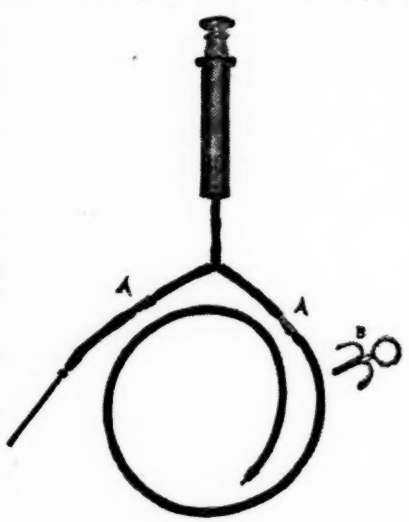
[9] *Proceedings of the Pathological Society of Philadelphia.* Edited by Baldwin Lucke, M.D. New Series, vol. xxvi; Old Series, vol. xliv. Philadelphia. 1924. (Med. 8vo, pp. 122.)

PREPARATIONS AND APPLIANCES.

An Aspirator.

DR. DANIEL MCLELLAN (Vancouver, B.C.) has forwarded a description of an apparatus designed by him for aspirating body fluids.

A 30 c.cm. Luer syringe is connected by an adapter and rubber tube to the stem of a Y-shaped glass tube. A Luer aspirating needle is connected by an adapter and rubber tubing to the receiving arm of the Y-tube, and to the discharging arm is attached a longer section of tubing. Between the needle and the receiving arm a glass valve is inserted, and between the discharging arm and the exit end of the long discharging rubber tube is a similar valve. As the piston is drawn up the valve in the receiving arm opens, allowing fluid to be drawn up into the syringe, and as the piston is pushed down the valve closes, preventing the passage of fluid backwards through the needle. As the piston is pushed down the valve in the discharging arm opens, allowing the passage of fluid through the valve and out at the exit end of the long rubber tube, and as the piston is drawn up the valve closes, preventing fluid from being drawn backwards through the discharging arm. These valves (A, A), which are of ground glass accurately fitted, are cone-shaped. The apex of the cone in the receiving arm should point towards the needle, while in the discharging arm the base of the cone should face the exit end of the long rubber tube.



In aspirating pleuritic fluid the procedure is as follows: The patient having been prepared, fill the apparatus with normal saline solution so as to expel the air. This is done by placing the needle in a bowl of saline or sterile water and taking a few strokes of the syringe. The last bubble may be expelled by inverting the syringe. A clamp (B) is then placed on the long tube to prevent the fluid running off. The exit end of the long tube must not be left standing open; it should have an adapter (c) of the same calibre as that in the receiving end. The needle being inserted into the chest, and everything ready, remove the clamp and proceed by easy steady strokes to evacuate the fluid. To ascertain beforehand that the needle is actually in the fluid, connect the syringe direct with the needle, draw up a small quantity of fluid, thus proving the point, then connect up with the apparatus and proceed.

This apparatus is intended for fluid not for pus. It was demonstrated on a patient at the November (1924) meeting of the Vancouver Medical Association, and is in use in the Vancouver General Hospital and at the Rotary Clinic for Chest Diseases, Vancouver.

Vulpro Waterproof Sheeting.

Vulpro waterproof sheeting is sold by Vultex Products, Ltd. (General Buildings, Aldwych, W.C.2), as a substitute for ordinary rubber sheeting for surgical purposes. It is a light, flexible fabric, and can be sterilized without damaging its waterproof quality. It is said to be more durable than ordinary rubber sheeting, and seems very suitable for surgical operations, for fomentations, and for any purpose for which jaconet is commonly used.

THE SAFETY OF GAS FIRES IN REGARD TO CARBON MONOXIDE.

BY

LEONARD HILL, M.B., F.R.S., AND T. C. ANGUS, D.F.C.

(From the Department of Applied Physiology, National Institute for Medical Research.)

At times alarm has been expressed in connexion with the use of gas fires as to the probability of chronic poisoning arising from inhalation of carbon monoxide. In a pamphlet published recently by a medical officer of health of a large city, and circulated at the recent Smoke Abatement Conference, this view was put forward definitely, but without supporting evidence.

We thought it worth while, then, to carry out a few experiments to see whether we could put this fear at rest and remove any antagonism against the wider use of smokeless fuel which is necessary in order to secure freedom from smoke pollution of the air and an adequate supply of the health-giving ultra-violet rays. Carbon monoxide has no poisonous effect other than that of combining with haemoglobin and depriving the tissues of oxygen.

Blood taken and diluted to 1 in 200 parts of distilled water afforded a standard transparent solution of haemoglobin: when placed in the narrow test tube of the Gowers-Haldane haemoglobinometer and viewed against a white background by daylight, it appeared yellow-red as is characteristic for this dilution and width of containing tube. Saturated with carbon monoxide by shaking with coal gas the tint of the solution under the same conditions is carmine. Partial saturations vary from the yellow-red very slightly tinted with pink up to the full carmine colour.

Experiment 1.

A balloon was filled with a measured volume of air by means of a blower fan and meter, and enough coal gas introduced to give 1 in 1,000 parts of air. A sufficiency of the standard solution of haemoglobin was placed in a tube 6 inches long and 1 inch in diameter, which at each end was closed by a cork through which a narrow tube was inserted. The tube was held horizontally so that the solution of haemoglobin lay from end to end along its floor exposed in a shallow layer to air above which was drawn through the tube in a steady stream through the narrow tubes, one of which was connected to the balloon, while the other was suitably attached to a suction fan driven by an electric motor. During half an hour 670 litres of air from the balloon was drawn over the haemoglobin solution. On comparison with the control solution (kept in pure air) this solution gave a just perceptible change in tint, indicating a very slight formation of carbon monoxide haemoglobin.

Experiment 2.

Two parts of coal gas per 1,000 of air were then put into the balloon and the experiment repeated After thirty minutes a slight but quite definite carmine tint was clearly seen on comparison with the control.

Experiment 3.

The experiment was now arranged so that air was drawn from the neighbourhood of a gas fire, a position being chosen where a person's face would be who sat down by the side of a fire in order to warm his legs. The gas fire 12 inches wide was of the modern type and properly flued, being built into a chimney, and was turned full on. During one hour 760 litres of air was drawn over the standard haemoglobin solution. No perceptible change in tint resulted.

The solution was reintroduced and the experiment continued for another eighty minutes. No change in tint resulted after 1,304 litres in all had been drawn over the blood. A resting man breathes on the average about 6 to 7 litres of air a minute, or the above amount in a little over three hours. More air was then drawn over in the two hours and twenty minutes' observation than a man would breathe.

Experiment 4.

An experiment was arranged so that air, in place of being drawn over, bubbled through the standard haemoglobin solution contained in a flask. In this case the rate of ventilation was about 150 litres an hour. The air was drawn from the neighbourhood of another gas fire in a different room, but of similar type and properly flued. No indication of carbon monoxide escaping into the room was found in this case.

Experiment 5.

This experiment was repeated on a windy day when possibly there might be some down draught in the flue. No evidence of carbon monoxide was obtained.

Experiment 6.

The experiment was repeated on a gas fire arranged in the grate of an ordinary open fireplace, the fumes from the fire escaping up the open chimney above the fire. No evidence of carbon monoxide escaping into the room was obtained.

Experiment 7.

The experiment was repeated with this variation, that a door adjoining the gas fire was set open to create a draught between door and window across the neighbourhood of the fire. The result was negative.

Experiment 8.

The experiment was repeated and varied by placing a small electric fan to blow across the gas fire to where the inlet to the sample tube lay. The fan blew across the warmed strata of air which lay in front of the fire, and this warm air was perceptible to the face when placed near the inlet tube and gave one at once a stuffy feeling. No evidence of carbon monoxide escaping into the room was found even in this extreme condition of artificial side draught, which might be expected to blow fumes into the air.

Experiment 9.

To make the conditions as severe as possible, four *flueless* gas stoves of various types were placed in a small room about 12,000 cubic feet in capacity, and the door and window closed. The stoves were lit and a mouse placed on the table in the room. After two hours the temperature of the air at head level was 100° F. dry bulb, and 87° F. wet bulb, and the room on entrance felt at once stuffy. The mouse's blood showed 16½ per cent. of carbon monoxide haemoglobin.

The difference between inside and outside temperatures set up enough natural ventilation through the crannies of door, window, and up the chimney to prevent very serious contamination of the air with carbon monoxide in this extreme case, showing how small is the amount of this gas arising from Bunsen flames burning in modern gas fires. The touch of heated air to the face on entering such a room is unpleasant, while the breathing of the heated air, which contains traces of sulphur acids, congests the nose and gives a stuffy feeling. At the same time cold feet may arise from the draught, cool air entering beneath the door. Gas fires should, then, always be properly flued.

No flueless gas burners or stoves should, of course, be used in *sealed-up* places where natural ventilation is almost *nil*. In such sealed-up places carbon monoxide may collect in dangerous amounts if cold surfaces are brought in contact with Bunsen gas flames so as to check combustion.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

EVIDENCE OF THE MENTAL HOSPITALS ASSOCIATION.

On March 10th evidence was tendered to the Commission on behalf of the Mental Hospitals Association by Alderman J. G. Taggart, J.P., of Liverpool, and Alderman Sir William Hodgson, J.P., of Crewe.

Alderman Taggart said that his association desired to eliminate the pauperization element which at present entered into lunacy administration. Were it not for their illness, less than 5 per cent. of the persons afflicted with mental disorder would be pauperized. He urged that instead of sending cases of incipient insanity to a Poor Law institution, it ought to be possible to admit them to hospitals supported by the public health authority, in the same way as fever cases and cases of tuberculosis were admitted. Mental ailments should be dealt with as one of the classes of disorders for which public health authorities had to make provision in the same way as for tuberculosis or for the treatment of venereal diseases. He was sanguine that this would prevent a very large number of persons from going on to the asylum. Such clinics would be clearing houses, relieving the asylum population, and would receive out-patients as well as in-patients. In Liverpool he thought this provision could be made with very little extension of existing accommodation at the hospitals which were provided wholly or partly by the public authority, and, indeed, a scheme might be worked out for the whole of Lancashire, and perhaps for a group of counties. In each county—or, in the more sparsely populated parts of the country, each group of counties—there should be a central clinic to which the patient might be brought. Clinics at present under the control of the public health authorities were supported by grants from the State up to 50 per cent., the remainder being supplied by local taxation, and he took it that the grant would be made for mental clinics as well. In Lancashire 11 per cent. of the entire population of asylums was discharged annually, but of the cases admitted during a year 33 per cent. were discharged within twelve months of admission. He would have a modified form of provisional order, similar to that required for notification and removal in the case of infectious diseases. The witness caused some amusement by insisting on minimizing, although himself a justice, the value of the judicial functions in relation to insanity; he declared that the medical authority must be the governing one. He also put forward his views with regard to discharges. At present it was possible for three members of the visiting committee to discharge a patient even without the medical superintendent's consent. In Liverpool this arrangement had worked disastrously in one instance, where ten patients were discharged in this way by three members new to asylum work,

and most of the ten found their way back. The medical superintendent's view should not be overridden in this fashion, and any decision to discharge a patient otherwise than with the medical superintendent's concurrence should be on the responsibility of the whole committee.

Sir William Hodgson said that he approved of the general principle embodied in the Mental Treatment Bill, and the Mental Hospitals Association had passed resolutions to that effect. He wanted to fill up the gap in the treatment of mental disorder by some such scheme as was embodied in that measure, but he disagreed with some of the machinery and methods proposed, notably with the clause dealing with the constitution of visiting committees and the provision for co-option. Visiting committees should be strictly representative of elected bodies. He expressed himself generally in antagonism to the principle of co-option on public bodies. The witness was asked for his views as to the prosecution of research at asylums; the line he took was that the impetus for research among workers in asylum laboratories ought not to be smothered by interference from the Board of Control or other central authority. The inventive and discovering mind was of a peculiar type, and was not necessarily revealed in team work. Asylums with well equipped laboratories should be given a free hand in their researches. The Chairman pointed out that the requirement of approval by a central body would prevent unnecessary duplication of research and undesirable overlapping. Sir Humphry Rolleston asked whether the Board of Control had exercised any action which was detrimental to research, and the witness replied in the negative, saying that the Board had not the power; and in reply to a further question from Sir H. Rolleston, he said that he did not think it was an advantage to have the advice of the Board of Control; his association was not in favour of State grants if it would mean more control by the Board. The Chairman pointed out that the Board of Control had to deal, not only with large up-to-date laboratories and asylums, but with places where there was less zeal. Sir H. Rolleston asked whether the witness thought that the Board of Control should be dispensed with, and Sir W. Hodgson replied that he did not think that anything he had said called for that question, but he was of opinion that the Board was not doing very effective work, and he would not be sorry to see it "scrapped." The Chairman asked whether, if the Board of Control were "scrapped," it would not be necessary for some other body to be substituted. The witness replied that he thought committees elected and appointed by the people, and in direct touch with the people, would afford the best system of control. He agreed that there should be central bodies to direct and diffuse information, but not to control.

The Commission adjourned its public sittings for, we understand, some weeks. It has still much evidence to hear in public, as well as evidence tendered by the National Society for Lunacy Reform, which, dealing with specific charges against asylum administration, is to be heard in private.

THE HOUSING PROBLEM.

THE National Housing and Town Planning Council has now issued its Technical Committee's first report, which will be read with interest by all who are specially occupied with questions of housing. The committee includes "architects, surveyors, building trade employers, building trade operatives, members and officers of local authorities, and housing reformers generally." Nearly all these classes are engaged in one capacity or another with the erection of houses, and are therefore possessed of technical knowledge. Occupants of houses, whose interests are the most important of all, are not technicians, but their case would doubtless be borne in mind, especially by local authority members who served on the committee. The subjects reported on are briefly: standards of design and construction, new methods of construction, labour supply, production of building materials, and regional distribution of new houses. It is held that houses should have three bedrooms as a rule, though two may suffice for elderly and newly married people. This is excellent in principle, but many an elderly worker, male or female, or even some of the newly married, might prefer to do with a single bedroom as part of their house, and so long as the supply of houses falls far short of the demand, which seems likely to be the position for many a year to come, the provision of more than minimum accommodation is apt to result in the occupation of houses by more than one family. The question is of great practical difficulty, but there are these two sides to it.

As concerns non-traffic streets, it is wisely recommended that, though there should be at least 70 ft. between houses on opposite sides, the roadway should be limited, and much of the space occupied by front garden or grass plots.

Turning to alternative building systems and new methods of construction, four sets of materials are considered—concrete, timber framing, steel, and asbestos, wood pulp, etc. Concrete blocks, where suitable material can be locally obtained, and granular concrete properly prepared and poured *in situ* between shutters, are well spoken of. Only three or four lines are devoted to timber-framed houses, and in that brief space attention is called to risks of fire and vermin. Those who have had experience of timber-built hospitals which have lasted for half a century in fair condition may think that this alternative hardly receives the attention it deserves.

The subject of steel-sheeted houses is treated in much detail and has evidently received much consideration. The opinions are frankly stated, and it is right they should be, even though they must be rather disappointing to the general reader who has vaguely hoped that a way out might be found in this direction. Cost is a great difficulty. Subject to the very important reservation fully emphasized by the committee, that mass production should considerably reduce the cost, it is held that in the meantime for the same accommodation the outlay will not be less for a steel than for a brick house. Indeed, comparative figures point in the other direction. A two-story brick house of over 900 superficial feet, providing three bedrooms, parlour, living room, scullery, and bathroom, is estimated to cost, including land, sewers, and roads, a total of £580, while a bungalow steel house of only 690 superficial feet, two bedrooms, living room, scullery, and bathroom, is estimated to cost (including land, etc., as above) £565, or only £15 less. The annual loss on the former house would be £13 15s. 1d., and on the latter £22 16s. 1d. That is very disconcerting, but once more the committee lays stress on the saving that would be effected by mass production.

Concerning the supply of building labour, the position is deplorably bad. Between 1901 and 1924 the total number of men in the various occupations of house construction has fallen from 828,462 to 367,030. Of bricklayers there were, at the latter date, only 57,000 (in round numbers) as against 120,000; of masons, only 22,000 as against 97,000; of carpenters and joiners, only 125,000 instead of 306,000; slaters, 5,000 instead of 16,000; plasterers, 16,000 instead of 36,000; plumbers, 34,000 instead of 76,000; and painters, 106,000 instead of 176,000. Much space is usefully given in the report to the subject of apprentices and their educational training, but meantime the facts are as above. Also, there is a shortage of brick, stone, tiles, and slates, and it is recommended that definite steps be taken by the Government and by local authorities to stimulate increased supplies.

Thus the country cries out for more houses, larger houses, and better houses. But there are not sufficient materials with which to build them, nor half enough skilled men to use the materials even if they were obtainable. At the same time more than a million men of other occupations are wandering about the streets out of employment, living on the dole, and complaining that it is not enough, while overburdened taxpayers and ratepayers declare themselves exhausted by what they are already called on to pay. The million of idle men includes thousands of shipbuilders, who now have to witness the dispatch of orders for new British ships to German makers, though shipbuilding has hitherto been the supreme example of the benefits of free trade, which enabled this country to out-distance all competitors, by buying at the lowest possible price every kind of raw material produced in any part of the world. Meantime the man in the street reads in the press suggestions that housebuilders, whether employers or employed, object to new methods of construction, as poaching on their preserves, whilst by no means enthusiastically welcoming the recruiting of their thinned ranks from the army of the unemployed. It does not lie with the medical profession to express any opinion between rival contentions, but every reasonable person must wish God-speed to the Prime Minister in his earnest endeavour to substitute for all these mad rivalries a spirit of conciliation and co-operation so as to save civilization from the destruction which at present threatens to overwhelm it. And not the least of its dangers is the failure to find means to provide reasonable housing accommodation for

those who are so urgently in need of it. The relation of housing to both moral and physical health makes the whole subject of special interest to all who are occupied with the prevention and cure of disease.

POST-GRADUATE TEACHING IN LONDON.

A MEETING, to which all practitioners were invited, was held at the house of the Royal Society of Medicine on March 18th, under the auspices of the Fellowship of Medicine and Post-Graduate Association, to discuss the best means of developing the Fellowship and increasing its range of usefulness. Sir W. ARBUTHNOT LANE presided over an attendance of from eighty to one hundred.

The CHAIRMAN said that the Fellowship had already grown to considerable dimensions and was rapidly becoming more popular. In time it must become a most important agent for education. Post-graduate study was a habit which every medical man must acquire if he hoped to succeed in his profession and to gain the respect and confidence of the lay public. The consulting branches of the profession had recognized the great value of interchange of ideas, but medical men in general practice had to realize equally the importance of being well abreast of recent knowledge.

Mr. HERBERT PATERSON, one of the joint honorary secretaries of the Fellowship of Medicine and Post-Graduate Association, said that in America almost every doctor attended post-graduate teaching at least once a year, and the habit was one to be encouraged in this country. It was also hoped to make London a world centre of post-graduate teaching and to intercept some of the students from overseas who were intending to go on to Vienna. Since the institution of the Fellowship five years ago over £7,000 had been distributed in fees to the various hospitals. The purpose of the present meeting was to ascertain more clearly what post-graduates wanted.

Post-Graduate Study in the Navy.

Surgeon Commander T. BROWN SHAW, R.N., expressed the regret of the Director-General of the Medical Department of the Royal Navy (Surgeon Vice-Admiral Chambers) for his inability to be present. Every medical officer in the navy, when he attained eight or ten years' seniority, must pass an examination to qualify for the rank of surgeon commander. The first period of post-graduate study consisted of three months devoted to medicine and surgery at a London hospital, and two months at the Naval Hospital at Greenwich, with visits to the School of Tropical Medicine. The second period commenced when the officer had attained a seniority of fourteen years' service, the course extending for three months, and being designed to afford him an opportunity of refreshing his general knowledge and of taking up special subjects. These courses were not compulsory, but every facility was given to officers to take part in them. During the three years 1922-24 seventy-one naval medical officers attended such post-graduate courses, and it was thought probable that this number would be materially increased in the future. In arranging courses of study for senior officers the facilities afforded by the Fellowship of Medicine had proved invaluable, and the speaker's own work as Director of Medical Studies had been simplified. The requirements of the Naval Medical Service included extended courses in general medicine and surgery, and in special branches, notably neurology, psychological medicine, cardiology, dermatology, ophthalmology, diseases of the ear, nose, and throat, and operative surgery. While centralization of teaching might be considered by many a desirable objective, the facilities afforded by the Fellowship for attending different hospitals and hearing the views of different teachers were a great asset. The special courses in general medicine and surgery, lasting about two weeks, had been highly spoken of by the officers, but a little more clinical work would be appreciated in place of some of the lectures; the courses were a little too crowded, and there should be more courses in operative surgery, which at present could be arranged only with the greatest difficulty, if at all.

Post-Graduate Study in the Army.

The Director-General of the Army Medical Service, Lieut.-General Sir W. B. LEISHMAN, said that the army had not so far resorted to the Fellowship. Arrangements for post-graduate study had grown up gradually at the Royal Army Medical College, had been interrupted by the war, but had been restarted, and were now in full working order, to the profound gratitude of every officer concerned. These courses were compulsory. Officers joined the college, on the average, at about the eighth or tenth year of their service, which, in normal times, coincided with their return after their first period of foreign service, when their knowledge was naturally a little rusty. In the army it was necessary to forecast the need and the provision, and to adjust the establishment to allow of a sufficient number of officers being trained at the college at any one time. Thus, successive bodies of officers were continuously under instruction. On an average thirty captains attended the course, which was divided roughly into three parts. In the first part they went to the college and received instruction from the staff in medicine—largely tropical medicine—surgery, pathology, and State medicine. That instruction might be called internal or domestic, and it was supplemented in various directions outside—for example, by attendance at the recruiting stations. This lasted for three months, and was terminated, like every stage of the training, by an examination. In the second stage, the officers, while still in residence at the college, were detached for further study in clinical medicine and surgery, and attended by arrangement at large civil hospitals—at present Charing Cross and St. Thomas's—where they had the benefit of seeing modern practice and also of attending special tutorial classes. At the end of this period, which extended for two months, making five months in all, came another examination. The third stage went a little further. It was desired to encourage every officer who had any particular bent to obtain the fullest instruction in the branch he favoured and to qualify himself as a specialist. Not all officers could be trained as specialists, of course, for that would bring about an absurd position in the army. It was possible only to justify the provision of specialists for whom there was work, and only about 50 per cent. of those attending the general course went on to specialization. Officers were not allowed to go on to specialize unless they had attained a certain standard of efficiency in the general examinations preceding that stage. A list of eleven subjects was presented from which the officer might choose: medicine (including tropical medicine), advanced operative surgery, pathology, hygiene, ophthalmology, ear, nose, and throat diseases, obstetrics and gynaecology (a very necessary army subject), dermatology (including venereal diseases), radiology, anaesthetics, and mental diseases. The course was for four months, except in hygiene, where it was extended to six months to make it fit in with the General Medical Council's new regulations for the D.P.H. The examination in these subjects demanded a very high standard, and it was not all who succeeded. Certain of the subjects could be taught at the college as well as anywhere else, but it was realized that in the majority of cases there must be resort to various hospitals and other institutions, and this help from the civil side of the profession was greatly esteemed. The attainment of qualification meant an addition of 2s. 6d. to the daily pay, but, much more than that, it gave its possessor the opportunity of developing his professional skill on lines for which he had an inclination. An endeavour was made to encourage the men wherever possible to obtain higher degrees and technical qualifications in particular subjects—the diploma in psychological medicine, for instance. A further point was that this nine months' post-graduate education was carried out without expense to the officer. This was because the service was a State medical service, and the State, once convinced of a good case, was not an ungenerous paymaster.

The General Practitioner's Needs.

Dr. GILBERT ORME spoke as a general practitioner who had lately settled in London after a long experience of Lancashire. He paid a tribute to the good work done by

the Fellowship, under whose auspices he had taken a three months' post-graduate course. He had met with courtesy and help in every direction; one or two complaints from others which he had heard seemed to him groundless. It was said that strangers coming to London were at a loss to know where to attend, and that when they went to certain hospitals nobody took any notice of them. If these persons studied the monthly syllabus issued by the Fellowship they would have no occasion for complaint. He suggested, however, that certain consultants or junior members of staffs of hospitals should be asked to allow their names to be placed on a panel, and that as part of their work they should arrange "personally conducted tours" round certain hospitals, which he supposed must be hospitals not having medical schools. It was not out-of-the-way and mysterious cases which would be taken, but such cases as might be met with in general practice from day to day. There should be a close relation between the central post-graduate body in London and post-graduate schools existing in the provinces. It was conceivable that men from the colonies or abroad might wish to take part of their course in London and spend the rest of it at some medical school in the provinces or in Scotland. The officials of the Fellowship should try to arrange for parties to be made up in London to go abroad to various foreign schools. This method, widely adopted in America, would be of interest and value to those practitioners who wanted to learn foreign methods, and would also bring before Continental schools the work that the Fellowship of Medicine was doing in England.

Mr. ZACHARY COPE thought that many would feel, after the explanation of the way in which officers in the navy and army had their needs met, that some national scheme ought to be set up whereby civil practitioners who felt the need of a "refresher" course could have adequate opportunity for taking it. Such a scheme should embrace the whole country, and co-ordinate London and provincial post-graduate courses. Sir William Leishman had stated that the State was not ungenerous. If that was so, the complaint of civil practitioners that they could not afford post-graduate courses ought to be met by some form of subsidy. While he would not suggest that the courses, compulsory in the army and navy, should be compulsory in the civil profession, he thought the Fellowship might try to get some official endorsement for a plan whereby civil practitioners would not only be given the opportunity but would be actually induced to improve their medicine for the good of the community as a whole.

Dr. MURIEL LANE asked for more obstetric and gynaecological courses, to which might be added some ante-natal and post-natal work. It would be useful, in the study of preventive medicine, if some children's welfare centres were added to the list of places attended. She also mentioned the paucity of clinical material on the woman's side in venereal diseases.

Dr. SOPHIA JEVONS reminded those present of the excellence of the Polyclinic of the old days, and thought that something on the same plan might be adopted by the Fellowship—that is to say, lectures, with or without cases, at a certain hour every afternoon four or five days a week. This would be better than intensive courses which the practitioner had to give up his work to attend.

Criticisms of Post-Graduate Teaching.

Dr. H. B. NEWHAM said that he had been connected with post-graduate teaching for the last seventeen or eighteen years at the London School of Tropical Medicine, and 2,000 students from all parts of the world had passed through his hands. He had heard from them many criticisms of post-graduate teaching in London, but he had no complaint to bring forward against the Fellowship. His complaint was rather against those actually engaged in the work of instruction, that they did not take a greater interest in the art of teaching. London had first-class physicians and surgeons, but frequently they had no flair for teaching and were not inclined to try. In London—unlike Scotland—men were appointed to the staffs of hospitals without any regard to their teaching capacity. Again, many people who came for post-graduate instruction did so at considerable inconvenience to themselves; probably they desired, say on two days a week, to go round with one particular physician attached to a hospital. He recalled that, before the days of the Fellowship, he once paid a fee for a course of instruction, and wanted to go round with a physician in charge of in-patients. He attended the hospital five times, and on three of those occasions this physician did not turn up, and there was nobody present to take his place. Another criticism was that there was too much tendency to have lectures on "curiosities"; what the average practitioner desired as a "refresher" was to see the cases he was likely to meet with in general practice, not the rare cases he might scarcely see in a lifetime.

A Plea for a Post-Graduate School of Medicine.

Dr. M. B. RAY said that a glance at the *Bulletin* would show that facilities for post-graduate instruction existed at practically every hospital in London, so there could be no complaint as to lack of material, nor, indeed, the quality of the instruction. It remained only to inquire into the organization. Those seeking post-graduate instruction might be divided into two classes. There were, first, those resident in London or its neighbourhood who occupied their spare time in sporadic attendances at various hospitals, occasionally taking up intensive courses; together with these were visitors from abroad who combined sight-seeing with a certain amount of post-graduate study. The needs of all these casual post-graduate students were admirably met by the existing arrangements. The second class was much more important, or at least its potentialities were greater. In included all who desired to spend from four to six months in earnest study. The idea might be Utopian, but it would be a great advantage if after a given time in practice all medical men were compelled to take up "refresher" courses. It was extremely difficult to run a practice and at the same time be *au courant* with the progress of medical learning. Such practitioners might at the present time enter into the same sort of arrangements as the casual post-graduate student, but the result was usually mental dyspepsia and fatigue; or they might go back to their old school and take up what they could in the way of instruction, but, as the school was intended for young men, this might prove irksome. Dr. Ray favoured the establishment of an up-to-date thoroughly equipped post-graduate school of medicine, devised to meet the needs of general practitioners, with a teaching staff devoting their entire energies to this work. The school and hospital to which it was attached should be definitely known by a distinctive title implying post-graduate work. The course of study should be sufficiently long to ensure adequate teaching. At the end of each course an examination should be held entitling the successful entrants to a diploma so that they would be able to style themselves graduates of the post-graduate school or some such title. At first the only men to come forward would be those in a position to delegate their practices to others, but as the fame of the school extended more and more men would flock to it. As matters stood, wonderful clinical material and unrivalled teaching were running to waste for lack of adequate direction.

Dr. FORTESCUE FOX said that one unfortunate circumstance that attended the amalgamation of societies in the Royal Society of Medicine was the forfeiture of the right of sections to promote post-graduate teaching in their own subjects. He urged the value of post-graduate teaching in balneology, and climatology, in which probably five hundred members of the profession in this country were specially interested.

Mr. E. B. TURNER spoke of the desirability that practitioners should take part in public health work. This would be first-rate post-graduate work, and would help to avert the tendency for public health work to get solely into the hands of whole-time officers.

Adjournment.

On the motion of Sir THOMAS HORDER, seconded by Sir HOLBURT WARING, the discussion was adjourned to Wednesday, April 8th, at 6 p.m.

MEMORIAL TO SIR WILLIAM MACEWEN.

THE committee appointed to arrange for a suitable memorial to the late Sir William Macewen, Regius Professor of Surgery in the University of Glasgow, has prepared a first list of subscriptions, which is printed below. The proposal is, as we have already announced, that the fund should be applied to three main purposes: (1) The provision of a bust to be presented to the University and a replica for Lady Macewen. The making of the bust has been entrusted to Mr. G. H. Paulin, A.R.S.A., and it is hoped that both bust and replica may be completed during the course of this year. (2) The endowment of a Macewen memorial lectureship, to deal with some surgical subject, and to be given annually or biennially. (3) The foundation of a Macewen medal or prize in surgery, to be awarded annually. To achieve all these three objects the committee finds that £3,000 will be required; the amount so far obtained (£1,550) is a little more than half that desired. We feel sure that there will be no difficulty in obtaining the remainder, and that in particular members of the British Medical Association will be ready to contribute. The Annual Meeting of the Association at Glasgow, over which Sir William Macewen presided, was a great success, and in many other ways he showed his deep interest in the welfare of the Association, not only at home, but overseas. Among other evidences of this was the visit he paid to Australia in 1923, and the welcome he received there was very grateful to members in this country. Sir William Macewen's reputation was world-wide, and it will be seen that among the subscribers in the list published below are some foreiga surgeons of great distinction, including Professor Harvey Cushing of Boston, Professor Rovsing of Copenhagen, Professor Hartmann of Paris, Dr. W. W. Keen of Philadelphia, Professor Alessandri of Rome, Dr. George W. Crile of Cleveland, and Professor de Quervain of Berne. The chairman of the executive committee in Glasgow is Dr. Freeland Fergus, and the honorary secretary is Professor Archibald Young; the honorary treasurer, to whom subscriptions may be sent, is Mr. James Macfarlane, D.L., LL.D., Wesleyan Street, Glasgow, S.E.

FIRST LIST OF SUBSCRIPTIONS.

£110.—H.R.H. Princess Louise, Duchess of Argyll.

£100.—Dr. James W. Allan (Peebles), Bailie David McCowan (Glasgow), Mr. James Macfarlane, LL.D., J.P. (Glasgow), Sir John Reid (Glasgow).

£50.—Dr. Freeland Fergus (Glasgow), Mr. and Mrs. George Morton (Troon), Mr. Robert H. Parry (Boar's Hill, near Oxford).

£25.—Sir Robert McAlpine, Bt. (London), the Right Hon. Lord Newlands, LL.D. (Carluke), Mr. J. Hogarth Pringle (Peebles).

£21.—Mr. Leonard Gow (Glasgow), Mr. James Macdonald (London), Mr. George W. Macfarlane, J.P. (Glasgow), Professor Archibald Young (Glasgow).

£20.—Mr. and Mrs. W. Martin (Cove).

£11 9s.—Balance of Royal Infirmary Staff Memorial, per Dr. John Henderson (Glasgow).

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Nova et Vetera.

NIGEL, THE PHYSICIAN OF THE DOMESDAY BOOK.

NIGELLUS, the only representative, so far as I am aware, of the medical profession mentioned in Domesday Book, is held by some to have been the Conqueror's physician, by others the physician to Earl Roger de Montgomery; both views are probably correct, for Earl Roger was the Conqueror's near kinsman. Contemporary records in which to search are not numerous; they consist of Domesday Book and the various charters to religious houses in England and France which were expedited by William. While I do not pretend to have read every charter in the eight folio volumes of Dugdale's *Monasticon*, I have looked through those of the Conqueror, and I do not find that the physician witnessed any of them; for the most part they are witnessed by great ecclesiastical dignitaries and the great feudal nobles of the realm, and if Nigel acted as a witness to any of them he must have been included in the "*multis aliis*" with which the attesting clauses usually end. In passing, I may state that it is very rare to find a medical witness in any of these early charters; I only noticed three, and they were all of a date much after that of the Domesday survey.

Domesday tells us the names and details of the estates which were conferred on Nigel. They are scattered over half a dozen counties, but for the most part occurred in Shropshire, Hereford, Wilts, Somerset, and Devon. In most instances, save, I believe, in the Exon Domesday, where he is named Presbyter, Nigel is styled Medicus. He was probably a priest-physician; at this date he can have been only a priest or a quack, and my respect for the Conqueror will not allow me to think that he can have been so easily gulled as to have admitted a quack as his physician.

One extract from Domesday will suffice for all, and I therefore transcribe the record of Nigel's Shropshire holding. In this county he finds himself in distinguished company. The tenants *in capite* in the county consisted of two bishops (Chester and Hereford), the Church of St. Remigius, Earl Roger with his men, Osbert FitzRichard, Ralph de Mortemer, Roger de Lacy, Hugh L'Ane, and Nigel the Physician. The extract is as follows:

TERRA NIGELLI MEDICI. IN LENTEURDE HUNDREDO.

Nigellus Medicus tenet de Rege WISTANESTOU. Spirtes presbyter tenuit de S. ALMUNDO, et erat T.R.E. victus canonicorum. Ibi IIII hidae. Terra est XV carucarum. Ibi VII villani cum VII carucis, et unus Francigena habens molinum quod reddit V summas annonae. T.R.E. valebat XXX solidos; modo XX solidos. Wastam invenit.

Isdem Nigellus tenet CLEU.[1] Spirtes tenuit. Ibi I hida geldabilis. Terra est IIII carucarum. In dominio est dimidia caruca, et unus servus, et unus radman, et IIII bordarii cum I caruca. T.R.E. valebat XII solidos; modo X solidos. Wastam invenit.

Translation.

Nigellus the physician holds of the King WISTANSTOW. Spirtes the priest held it of St. Alkmund, and it was in the time of King Edward for the victuals of the canons. There are 4 hides. It is a land of 15 ox-teams. There are 7 villans with 7 ox-teams, and one Frenchman having a mill which pays 5 loads of corn. In the time of King Edward it was worth 30s., now 20s. He found it waste.

The same Nigellus holds CLEU. Spirtes held it. There is one hide paying geld. It is a land of 4 ox-teams. In the demesne is half an ox-team, and one serf, and one radman, and 4 bordarii with one ox-team. In the time of King Edward it was worth 12s., now 10s. He found it waste.

This was Nigel's holding *in capite*; he also had 16s. annually from the Church of St. Mary, Bromfield, in the same county. The question is complicated by the fact that four manors in the northern part of the county, in Hodnet Hundred, were held at the Domesday survey by Nigellus; in none of these manors is he styled medicus. Eyton, in the *Antiquities of Shropshire* (vol. 10, p. 1), says that the Nigellus of Hodnet Hundred

"has been identified by some with Nigel de Stafford, the reputed brother of Robert, first Baron Stafford, and the undoubted ancestor of the Gresleys. I must bespeak for our Shropshire Nigel a position far inferior both in its antecedents and its consequents. He was a clerk, and a physician—physician, indeed, to Earl Roger de Montgomery himself. In seven instances he succeeded to the benefices of Spirtes, a Saxon priest. This was in his spiritual capacity. The compact estate of four manors, which he held under Earl Roger in North Shropshire, would probably have descended, as a lay-fee, to his heirs, if heirs he had. I should here observe that a lay-fee in Staffordshire, consisting of three manors held *in capite* of the King by Nigellus, was much more probably the fee of Nigel de Stafford than of Nigel the physician. There can be no doubt that Nigel the physician died in the time of Earl Hugh de Montgomery (1094-1098), and that his estates in Shropshire escheated to the same Earl,"

and so to his brother Earl Robert de Belesme, at whose defeat by Henry I they escheated to the King.

Before leaving Nigel's Shropshire holding it is of interest to turn to his rent of 16s. from the manor of Bromfield. Domesday has, "et Nigellus Medicus habet de hoc manerio xvi solidos." In the time of King Edward, Spirtes had a large holding in this manor. Eyton (vol. 5, p. 207) tells us a good deal about Spirtes.

"He lived in the reigns of three Saxon kings, Harold I, Hardicanute, and Edward the Confessor. With the first two he was a special favourite; the last banished him, for what cause is not known. The Herefordshire Domesday refers to a period of the Confessor's reign, when Spirtes the priest held four manors in that county under the Church of St. Guthlac. At Domesday St. Guthlac had lost the seigneury of these manors, and the same Nigel the physician, who had an interest in Bromfield, held them all, independently of the Church. Spirtes was a canon of the Collegiate Church of St. Alkmund, Shrewsbury. His prebend therein was Wistanstow, both the Church and the Manor. A monastic memorial of great credibility tells us nothing of Spirtes's previous banishment, but begins with the fact of Edward the Confessor bestowing the prebend of Wistanstow on *Godric Wiffesune*, on whose death, says the same record, Earl Roger gave the prebend to *Nchel*, a clerk, his own physician. (Lilleshall Chartulary, fo. 100.) Domesday, in all but perfect harmony, gives Nigel the physician as Lord of Wistanstow, but holding it of the King, not of Earl Roger."

It will have been observed that under Bromfield, Nigel is expressly called Medicus, and that in the case of the four manors in the north of the county he is not so styled. It must be remembered that the prime object of the Domesday survey was fiscal. It was a territorial record enumerating those who held the land in 1085; by whom it was held in the Confessor's reign; how much there was of it; how many plough-teams, serfs, villans, radmen, bordarii, etc.; what it was worth at the survey, and how much it was worth before the Conquest. With Domesday at hand the King could settle disputes of succession, and he could also get a shrewd idea as to the amount of taxation the country would stand. Now it was immaterial from the revenue point of view whether Nigel was called Medicus or not. A King's writ would have reached him in Hodnet or in any of his other holdings as easily as the G.P.O. delivers us our income-tax forms at the present day, allowing for the difficulties of transport at that early date; but I cannot see why the commissioners should have called Nigel Medicus in one place and not in another in the same county. Far be it from me to question the accuracy of, or to appear to sit in judgement on, the late Rev. R. W. Eyton, the historian of my native county and one of the greatest genealogists and experts on Domesday that has ever lived. I simply state the difficulty as it appears to me. The only difference in the two holdings was that in the south of the county Nigel held direct from the King, and in the north from the Norman earl, Roger. We have seen that Nigel succeeded Spirtes in Shropshire and Hereford; the same was the case in Wilts and Somerset. I do not give the extracts from Domesday as I do not wish to be accused of prolixity; but in the four manors in Wilts Nigel succeeded Spirtes and was a tenant *in capite* of the Crown.

Here let us leave him, surrounded by his serfs, his villans, his radmen, and bordarii, and his 16s. from St. Mary's, Bromfield, until the Judgement Day.

R. R. JAMES, F.R.C.S.

[1] CLEU. This place has not been identified with any place in modern Shropshire.

British Medical Journal.

SATURDAY, MARCH 28TH, 1925.

CARCINOMA OF THE CERVIX.

Two main difficulties are encountered in investigating the incidence and response to treatment of carcinoma of the cervix uteri. The first is that of constructing some system of classification applicable to a large series of cases so that statistical deductions may be soundly based. The second difficulty is that of assessing the value of different remedies in a disease in which the criteria of the effectiveness of treatment are so uncertain at present that the adjective "cured" is usually replaced by the more cautious term "arrested." This problem of the incidence of carcinoma of the cervix, and of its response to radium therapy, alone or combined with *x*-ray treatment, has been attacked during the last few years by several investigators, both in this country and in the United States of America, and statistical reports are increasing in number.

Two recent American reports call for special attention. H. Schmitz[1] has published an account of 450 cases treated in his clinic between 1914 and 1923; and H. C. Taylor and T. C. Peightal[2] describe their investigation of 201 cases observed between 1910 and 1921. Of the 450 patients of Schmitz 345 had primary carcinoma, while in 104 recurrence of the disease had followed pan-hysterectomy. Schmitz points out the disadvantage of grouping cases according to the uncertain criterion of operability, into which the complicating personal factor of both the patient and the surgeon enters. He prefers the four following groups, based on the results of general and bimanual physical examination, together with endoscopic examination of the bladder and rectum. Group 1 contains the cases in which the cancer is clearly limited to the cervix, and Group 2 the doubtful cases in which there is some evidence of infiltration of the paracervical connective tissue; in Group 3 he places cases in which there is induration of the contiguous tissues and organs; Group 4 contains cases in which there is advanced disease, with large areas of necrosis, toxaemic cachexia, and metastases. He first tabulates his 450 cases according to the calendar year and physical findings, and it is noteworthy that while in the years 1914 to 1917 there was no appreciable change in the number of cases dealt with in any of the four groups, from 1918 onwards there was a marked and progressive increase in both primary and recurrent cases.

Schmitz agrees with Taylor and Peightal with regard to the age incidence of this disease: of Schmitz's cases 84 per cent. occurred between the 30th and the 60th years, the Taylor and Peightal figures giving 90 per cent. Between the ages of 40 and 60 the Schmitz percentage is 67, as compared with 70 of the two other authors. The relation of cancer incidence to past pregnancies is considered in both papers, and Schmitz, in common with Taylor and Peightal, opposes the prevalent view that the occurrence of carcinoma of the cervix is related to multiple pregnancies. Schmitz considers the deduction permissible that chronic infections resulting from trauma and bacterial invasion predispose primarily to cancer, and that the number of pregnancies is only a possible secondary predisposing factor. In a total of 400 consecutive cancer cases he found that 241 patients (60.25 per cent.) had three or fewer pregnancies or were childless. Recognizing that it might be suggested that marriages resulting in from none to three children predominated in American families, he tabulated 400 case-histories of healthy married women, aged 41 or older, according to the number of children. He thus found that the percentage of the number of pregnancies was practically the same as in the case of cancerous patients. Schmitz found that in 406 case-histories the most prominent symptom which induced the patient to seek medical aid was definitely stated to be haemorrhage in 249 cases (61.5 per cent.); pain in 82 cases (21.1 per cent.); and vaginal discharge in 60 cases (or 14.7 per cent.). He concludes that haemorrhage of less than three months' duration probably indicates that the patient belongs to Group 1; if pain was the most prominent symptom the patient might be referable to any of the other three groups; while discharge as the most prominent symptom gave very little information as to the extent of the disease. He adds that haemorrhage is the most alarming symptom; discharge the first to appear; and pain the most unfavourable symptom of carcinoma of the cervix. Patients in Group 4 (advanced cases) always presented the three symptoms.

With regard to the results of different methods of treatment, Schmitz agrees with Taylor and Peightal that radium therapy gives better results in the inoperable cases of Group 4 than are obtainable by any other non-operative palliative procedure or by cautery. In early cases Taylor and Peightal assert definitely that the hysterectomy statistics compare very favourably with those of radium treatment: Schmitz, however, takes the opposite view. Taylor and Peightal's figures for early cases treated by hysterectomy gave 34 per cent. free from recurrence three years or more after the operation; 25 per cent. free five years or more. When hysterectomy was combined with radiation 44 per cent. had no recurrence three years or more after treatment, and 31 per cent. five years or more. In Schmitz's clinic very few early cases (those in Groups 1 and 2) were treated; he was mostly concerned with patients in whom operation had been pronounced inadvisable. Using radium combined with *x* rays, three patients in Group 1 were free from active disease after five years, and six in Group 2, the relative percentages being respectively 100 and 40. He also publishes a table of statistics of cases collected from six clinics. Three of these clinics made use of radium only, and three combined radium with *x* rays; in the latter case the percentage of cases of all groups remaining free from disease after five years was in the neighbourhood of 14 (211 patients were alive out of 1,480 treated). In Group 1, 14 out of 30 patients (44.4 per cent.) treated by radium only at two clinics were alive, as compared with 69 out of 175 (33.7 per cent.) treated by both radium and *x* rays at three other clinics.

Although the figures are at present too small for any final deductions to be drawn, yet the conclusion in both articles is that the combination of radium and *x* rays in the treatment of carcinoma of the cervix is likely to gain favour, especially in border-line and inoperable cases.

[1] *Journ. Amer. Med. Assoc.*, January 10th, 1925, p. 81.
[2] *Amer. Journ. Obstet. and Gyn.*, September, 1924, p. 288.

THE INTERNATIONAL CONTROL OF DRUGS OF ADDICTION.

IN the JOURNAL of February 28th reference was made to the agreement, convention, and protocols, which were the outcome of the two prolonged opium conferences held at Geneva between November, 1924, and February, 1925. The agreement reached by the first conference, signed by Great Britain, France, India, Japan, Netherlands, Portugal, and Siam (the two last with reservations), purports to bring about the suppression of the use of opium for smoking, as enacted in Chapter II of the Hague International Opium Convention of 1912. It lays stress on the increase of smuggling as "greatly hampering" the accomplishment of this suppression. It seeks to make the traffic in opium and the manufacture of smoking opium Government monopolies (even "dross" is to be purchasable only by the monopoly), and illicit traffic is to be prohibited. These provisions will be applicable only to those territories in which the use of prepared opium is "temporarily authorized." The protocol recites that the signatories, "anxious to ensure the complete and final execution of the obligations and to strengthen the undertakings assumed under Article VI of the Hague Convention of 1912," will, "as soon as the poppy-growing countries have ensured the effective execution of the necessary measures to prevent the exportation of raw opium from their territories from constituting a serious obstacle" to reduction of opium smoking, take measures "to reduce consumption of prepared opium . . . so that such may be completely suppressed within a period of not more than fifteen years" from the time when a commission appointed by the Council of the League of Nations shall decide that such effective measures to prevent the export of raw opium have been taken.

There are not wanting critics who doubt whether experience of Government monopoly in opium elsewhere has tended to the abolition of traffic in the drug, and it is urged that the extension of the possible period for legitimate opium smoking to fifteen years from some indefinite future date is a rather disingenuous method of achieving that effective suppression or prohibition which the Hague Convention of thirteen years ago undertook to effect either "immediately" or "as soon as possible." A recent reply in the House of Commons has shown that in Brunei 18.24 per cent. and in the Straits Settlements no less than 45.4 per cent. of the Government revenue is derived from opium, and the question is being asked whether a commencement in the policy of prohibition or suppression might not be initiated in the British Crown Colonies. On March 13th in the Indian Assembly at Delhi, by 60 votes to 52, a motion was carried, against the Government, for reduction of the revenue from opium, with a view, it is alleged, of securing investigation into the opium policy of the Indian Government.

The convention, protocol, and final act of the second Geneva opium conference, directed against the traffic in manufactured narcotic drugs, in some respects repeats, in others strengthens and elaborates, and in others possibly weakens, the provisions of Chapter III of the Hague Convention. Indian hemp is added to the list of scheduled drugs; a permanent central board, with watching, advisory, and carefully limited powers, is set up, to which information as to supplies, stocks, and demands is to be furnished. "Tincture of opium, Sydenham laudanum, and Dover powder" for urgent cases may be exempted from the usual regulations up to a dose of "25 centigrams of officinal opium." Up to the present time the convention, protocol, and final act have been signed by Albania, Australia, Belgium, Brazil, France, Germany, Great Britain, Greece, Japan, Luxemburg, Netherlands, Persia, Poland, Portugal, Siam, and Uruguay. Bolivia and Hungary have signed only the Final Act. The United States of America and China, it will be remembered, withdrew from the second conference shortly before its close.

CONDUCT AND BODILY DISEASE.

SIR HUMPHRY ROLLESTON has had reprinted from the pages of the *Midland Medical Journal* an address upon some historical cases of disease and their remote effects on others which he delivered last autumn to the Midland Medical Society. The theme is one which has been touched upon by a number of writers whom Sir Humphry quotes, and it is one of perennial interest. Although it may be idle, it is nevertheless generally interesting to speculate on what would have happened had the Napoleon of 1815 been as efficient as he of the "whiff of grape-shot" twenty years earlier. Many other cases are considered in the address, and many more will suggest themselves to the thoughtful reader, whether he holds with Jeffrey and Brougham that "the mind is independent of the body," or accepts the teaching of Maudsley and others that the mind is a function of the body. We may judge how strong and resistant is Dryden's "thin partition" in cases such as that of John Hunter, as quoted by Sir D'Arcy Power, and in many of the historical instances referred to by Sir Humphry Rolleston. Yet is the finest intellect at the mercy of a minute wandering particle of fibrin which, if it blocks the appropriate vessel, may reduce the poet, the statesman, or the man of science to second childishness and mere oblivion. Sir Humphry recalls to us the very polemical writings of the late George M. Gould of Philadelphia, who contended in six volumes of *Biographical Clinics* that every distinguished man of letters suffered from eye-strain, and that the prescription of proper spectacles would have cured him. If it were objected that some of these sufferers had the best available ophthalmological advice, it appeared further that only in Philadelphia could the correct lenses be prescribed and fitted. Others have urged that defect or excess of internal secretions has been responsible for the maladies of genius, and in this connexion it is noteworthy how little is written, probably because so little is known, of the sexual lives of great men. Sir Humphry Rolleston's address is full of suggestive information which may well prove fruitful. It furnishes corroborative evidence, if such can be needed, of the excellence of the judgement which selected him to succeed that most learned and wise physician, Sir Clifford Allbutt, in the Regius Chair of Physic at Cambridge.

WHAT IS AN EYE SPECIALIST?

DR. FREELAND FERGUS, the veteran ophthalmic surgeon of Glasgow, has written a pamphlet[1] in which he discusses the question set at the head of this note. It is in the form of an open letter addressed to a colleague. The epistolary form of communication lends itself to a certain degree of discursiveness, and in this letter Dr. Fergus lets himself go on more than his main topic. But the intention of his letter is plain. It is an onslaught upon the General Medical Council for certain shortcomings he lays to its door. But whether or not that Council is to blame for the defects he finds in medical practice is a matter of discussion. He says: "At the moment there is no recognized (ophthalmic) qualification; any registered practitioner who is able to

[1] *What is an Eye Specialist? or the General Medical Council and Ophthalmology.* By A. Freeland Fergus, M.D., F.R.F.P.S.G. Glasgow: Alex. Macdougall. 1924. (Pp. 31.)

buy a set of trial lenses and the necessary test-types can call himself an eye specialist, and can practise as such." That, he says, is the fault of the General Medical Council. If the statement be examined critically it will be found that the stress is on the verb "can." Every practitioner duly qualified and registered can, if he will, practise any and every branch of medicine; and he will do this, and properly do it, so far as the bent of his mind directs him, his capabilities support him, and the general public are attracted by the reputation he possesses or acquires for doing what they wish done for them. The General Medical Council plays no part in sorting out practitioners into the several departments into which they naturally fall in process of time. It does not and it cannot say which of these shall be general practitioners, or which devote themselves to some one or other part of medical practice which forms a "special department." Its business is to see that the student has a sufficiently wide and thorough course of instruction in all that will fit out a competent practitioner, and to require that he shall show that he has taken due advantage of these opportunities by passing satisfactory examinations. That is the relevant statutory function of the General Council of Medical Education and Registration. Regarded in this connexion it is seen that there is no analogy between the practice of ophthalmology and the practice of public health. The State has insisted upon a differentiation, or rather a supplementary qualification, before a practitioner shall be allowed to practise as a medical officer of health. So that Dr. Fergus should, if he wishes to see a distinctive and compulsory qualification in ophthalmology, have laid his charge against the Legislature and not against the General Medical Council. He cites sundry incidents which, he alleges, support his contention for the need of some such distinctive qualification. His instances are undated, and since one of them at least occurred in his student days it may be that others are spread over so long a period as not to form a weighty indictment of present-day practice. The work done by those practitioners who undertake ophthalmic work is in these days subject to very thorough scrutiny. Many of them do work for public authorities, such as the various education committees, through school clinics; and there can be little doubt that if their work were not satisfactory the failure would have been heard of long ere this. On the contrary, there is evidence that their work is satisfactory. The annual reports of the Chief Medical Officer of the Board of Education are evidence of this; and the general effect of this evidence may be summed up in the words of the report of the Departmental Committee on the Causes and Prevention of Blindness: "We are advised that since the regular examination of the eyesight of school children has been undertaken the number of medical practitioners competent to prescribe glasses for ordinary errors of refraction has greatly increased, and is increasing." But if no steps have been taken by the State to secure such a differentiation, effective steps have been taken by the profession itself. The general formula adopted by the British Medical Association is to the point—"(*a*) that he has held hospital or other appointments affording special opportunities for acquiring special skill and experience of the kind required for the performance of the service rendered, and has had actual recent practice in performing the service rendered or services of a similar character; or (*b*) that he has had special academic or post-graduate study of a subject which comprises the service rendered, and has had actual recent practice as aforesaid; or (*c*) that he is generally recognized by other practitioners in the area as having special proficiency and experience in a subject which comprises the service rendered." This shows the trend of professional opinion. That it is being acted upon is made certain by the increase of diplomas in ophthalmology and of post-graduate study in this subject. If there be not agreement with some of the views of Dr. Fergus, there can, however, be nothing but commendation for his insistence on the need for the proper equipment of those who essay to practise ophthalmology, whether as their sole practice or as part of wider general practice; and his insistence will surely have effect, if not altogether by the road of his desires.

AN ICONOGRAPHY OF ANDREAS VESALIUS.

IN 1914 the University of Brussels initiated a movement to celebrate the quatercentenary of the birth of Andreas Vesalius, and a committee was formed, under the presidency of Professor Paul Heger of the University of Brussels, to carry out the plan. The permanent form which this celebration was designed to take was the publication of a *Liber Memorialis*, comprising a collection of essays to be contributed by a group of selected scholars, the best authorities on their several subjects. The late Sir William Osler was greatly interested in this memorial, and took an active part in its preparation. Mr. M. H. Spielmann, well known as an authority and writer on art, was invited to undertake to form an *Iconography of Vesalius*, which was to be complete in every respect and form a lasting memorial to the great anatomist. This part of the work was duly carried out. Then came the great war, which put an end to the celebration in Brussels, and also to the arrangements for carrying out the celebration, and for some years the matter has lain dormant. A general opinion has, however, been expressed in Belgium, in England, and in America that this *Iconography* should see the light, as by itself it might be regarded, even at this date, as a reminder of the anniversary which the world of medical science was preparing in 1914 to celebrate. It has therefore now been arranged that it should be published in its complete form from the Wellcome Historical Medical Museum as the third volume of the Research Studies in Medical History issued by that institution. The King of the Belgians has accepted the dedication, and forewords will be contributed by Professor Paul Heger, President of the University of Brussels, Sir Arthur Keith, F.R.S., Professor Harvey Cushing, and Dr. Tricot-Royer, President of the International Society of the History of Medicine. The book will be something more than a treatise on the portraiture pure and simple, for historical, bibliographical, literary, biographical, and critical points are treated. The book will be illustrated by over a hundred reproductions from paintings, pictures, engravings, sculptures, and medals, together with a full bibliography of the subject. It will include also a print on antique paper taken from the original wood block by Calcar, made for the frontispiece of the second edition of *De Humani Corporis Fabricâ*, published in Basle in 1555. Only a limited number of pulls will be taken from this unique relic, and a copy will be given to those who subscribe to the book before publication. The work will be published, probably in May, by Messrs. John Bale, Sons and Danielsson at 30s. a copy.

CORONERS' LAW.

IN December last the Home Secretary stated that there had been in preparation for some little time a bill to deal with coroners' law, that this bill was not very controversial, and that he hoped to introduce it early in the present session. This assurance was renewed on March 5th, but as the bill has not yet been printed all that is certainly known of its contents is that it deals with the constitution of coroners' juries and with the overlapping between the procedure in the coroner's court and the ordinary criminal procedure in cases of suspected murder. These are matters of detail, albeit of important detail, and we may hope that the bill will deal with the more fundamental anomalies recognized by the Coroners' Law Committee in 1909 and by other official

inquiries before and since. Whether it is possible to do so adequately without a comprehensive reform, not only of coroners' law, but of the whole mechanism of death certification and registration, in which coroners' law plays an important part, is open to doubt. The British Medical Association has long held the wider view, and for the last eighteen months a special subcommittee has been working to adapt the policy of the Association as originally laid down between 1904 and 1909 to the existing situation. It is now recognized that the bill introduced for the Association by Major Molloy in 1923 was in several respects unsatisfactory. A bill on similar lines was introduced by Dr. Salter in 1923, and in 1924 on behalf of the Federation of Medical and Allied Services. Pending such radical reform there are several points besides those mentioned by the Home Secretary which call for immediate attention, and on the merits of which opinion can hardly be divided. The fees for medical witnesses under the Coroners Act of 1887—namely, one guinea for attendance to give evidence during the whole course of the inquiry and an additional guinea for a *post-mortem* examination carried out by a private practitioner—were inadequate in 1909, when the departmental committee sat; they are to-day little less than absurd, whilst the provision of Section 22 of the Act, whereby certain medical officers are altogether debarred from receiving fees in connexion with inquests on patients dying in the institutions they serve, is not rendered more equitable by the lapse of time. In this connexion the decision of the London County Council, on the representation of the Government auditor, that Poor Law infirmaries, hospitals controlled by the Metropolitan Asylums Board, general infirmaries, prisons, and other medical institutions of a public character can properly be included among the institutions to which this section applies, was noted in the BRITISH MEDICAL JOURNAL on August 9th last. To extend materially after so long an interval the application of a provision generally recognized as inequitable is, to say the least of it, unusual. It may be hoped that it will have the effect of focusing departmental attention upon the position to good purpose, and that the promised bill will afford the desired relief. That the coroners themselves resent the necessity for withholding fees under this provision is made amply clear by their comments from time to time when the question arises. Dr. Waldo, the City coroner, especially has never neglected an opportunity of pressing the point, and recently advised institutional medical officers to approach their members of Parliament on the matter. The London County Council, which has secured a saving of £1,500 a year by the new rule, allows the payment of travelling expenses up to 2s. 6d. At a recent inquest this provision secured for the medical superintendent of Shoreditch Infirmary the offer of 2d. for his tram fare to the Southwark coroner's court.

A CODIFICATION OF RULES FOR SPECIAL SCHOOLS.

IN the past half-dozen years there have been issued by the Board of Education many memorandums giving regulations regarding the conduct of special schools provided for under various statutes. The Board has now issued in a single set of regulations[1] the requirements which have hitherto been contained in these several regulations. The codified regulations deal with medical inspection and treatment of school children in elementary schools and in secondary schools; with the provision of meals; with schools for the blind, deaf, defective, and epileptic, and the higher education of such; also with nursery schools, with physical training, and with grants to institutions not provided by the local education authority. In a covering circular letter it is stated that the new regulations are in the main the codification of existing provisions, but there are changes in the omission of requirements specifically laid down by statute, and by the limitation of the regulations to such as experience has shown to be essential. Besides these changes there are some in substance to which attention is drawn in the circular letter. The chief of these appears to be related to the training of such children as are blind and deaf. Hitherto it has been a common custom to retain children over age—that is, over the age of 16 years—where it was considered that a further period of school might be of advantage. The custom was illegal, and gave rise in some instances to difficulties. Now that the further training of these children is provided for elsewhere the Board has decided that it will not for its part consent in future to the retention of any child at a special school after the date on which he ceases to be under an obligation to attend school. The change will be advantageous, for these older children did not mingle well with the very young children who form the greater number of the special classes. There is one cause for complaint in the manner of the drafting of this circular letter: it is a case of continued discussion by reference. Such a sentence as "This Article takes the place of the former Article 9 (*b*) of Grant Regulations No. 6, and Articles 3 (*b*) and 21 of Grant Regulations No. 19" may be necessary, but is apt to produce irritation in the mind of the reader; whereas the use of the more popular "parallel column," showing the old and the new, would impress and inform.

[1] Draft Statutory Rules and Orders, Education, England and Wales. The Board of Education (Special Services) Regulations, 1925. (Pp. 18. Price 5d. net. With covering circular letter No. 1354.)

THE BACILLUS OF NECROSIS.

THE "bacillus of necrosis" is commonly found as a saprophyte in the digestive tract of many herbivorous animals. In some circumstances it may penetrate the tissues, and, adopting a parasitic existence, cause very considerable disorders. A varying clinical picture is seen, but a characteristic necrosis is always present. The organism has been recovered from many mammals and birds, and is much more familiar to the veterinary surgeon than to the medical practitioner. The recent clear summary of our present knowledge of this organism by Césari[1] is therefore the more useful. The systematic position of this bacillus is by no means definite. Its generally accepted name is *Bacillus necrophorus*, but the American Association of Bacteriologists considers that it belongs to the genus *Actinomyces*, a genus of fungi to which also belongs the organism of actinomycosis. It was first discovered by Loeffler in 1884, and since that date has been extensively studied by many workers. It is very pleomorphic; in young lesions it most commonly appears as long filaments, varying in length from 10 to 100 μ; in older ones it is as a rule bacilliform (about 2 to 3 μ long); while it sometimes appears as a coccus with a diameter of 1.5 μ. The organism is Gram-negative, and is easily stained by most basic aniline dyes, when it shows chromatine granules—a fact which causes some bacteriologists to place it in the genus *Corynebacterium*. It is immobile, non-sporulating, and non-flagellate. It is strictly anaerobic, but can grow under aerobic conditions in the presence of *B. subtilis*, calcium sulphate, and other reducing agents. It is not difficult to cultivate, growing at 37° to 38° C. in a variety of media and forming characteristic growths. In liquid media—especially glucose broth—it produces a thermolabile toxin. The bacillus may be recognized by its morphology, staining reactions, and its cultural characteristics. The diagnosis may be confirmed by animal inoculation, the rabbit being the animal of choice. Many specific infections in animals are due to this bacillus, although, as a primary infection, its necrotic action may open the way to other organisms with very serious results. It can, moreover, complicate an

[1] *Rev. Path. Comp.*, November, 1924, pp. 695-711.

existing lesion or disease as a secondary invader. In the horse it is regarded as the essential agent of a specific necrosis of the extremities and of an ulcerative dermatitis of the hip; it has also been found in the diphtheritic exudate covering ulcerations in the large intestine. In young cattle it causes a very serious "calf diphtheria," a disease characterized by the appearance of plaques and ulcers at the back of the mouth. It also gives rise to a caseous necrosis of the digestive tube in calves and an epizoötic necrobacillosis in fully grown animals, with necrotic or purulent foci in the lungs and liver, and ulcers in various parts of the intestinal tract. In these animals also it is the agent of various enzoötic outbreaks, the bacillus being found on the genitalia of cows, in lesions on the feet (enzoötic contagious "foot rot"), and in a nodular necrotic hepatitis frequently seen in slaughtered animals. In sheep this organism is the cause of enzoötic "lip-and-leg disease," characterized by ulcerative plaques on these situations and on the external genitalia, and showing some resemblance to foot-and-mouth disease. It also produces hepatic lesions in this animal as in cattle. In the pig it is present in diphtheritic ulcers in the intestinal tract, while in dogs it sets up a fistulous dermatitis in the interdigital spaces and in other positions exposed to friction. It is the agent of other enzoötic infections in animals, domestic and wild, and is frequently found in the lesions of avian diphtheria in fowls. The pathological picture in the different diseases is very varied; but the underlying process is constant in all. The course of the disease depends partly on whether the bacillus remains localized or becomes generalized, and partly on the sensitiveness of the host to the toxin. When the animal is very sensitive the process is characteristically necrotic; when it is resistant the leucocytes alone die, and the lesion is suppurative. Accordingly, as in tuberculosis, necrobacillosis appears as a disease which, single in principle, is multiple in expression. It would seem legitimate to expect that an organism which affects practically all the higher mammals would not spare man. Such infections are, however, extremely rare, and in most cases such a diagnosis amounts to no more than conjecture. Ellermann has cited one case where this bacillus caused a pseudo-diphtheritic affection resulting in the death of a child. Several more recent instances have been recorded, but although it is highly probable that this organism was the cause of some of the lesions it has not been proved to be so. Man may be resistant to the disease, but that he is not entirely so was proved thirty years ago, when Schmorl accidentally wounded his hand with a culture tube of the bacillus. However, the risk of human infection is infinitely less than in the case of other animals, and, admitting that the organism can have a pathogenic action in man, it would only endanger those who have sick animals under their care. Nevertheless, a study of the flora of necrotic or gangrenous lesions of the extremities and the mouth might possibly bring to light the presence of this ubiquitous bacillus in man.

THE REPROACH OF BRITAIN.

THE visit of foreign health officers to this country to study public health administration, arranged, for the third year in succession, by the League of Nations, began on February 8th and came to an end on March 23rd. The countries represented were Canada, Denmark, Esthonia, France, Germany, Greece, Holland, Italy, Jugo-Slavia, Norway, Poland, Russia, and the United States of America. After a short stay in London the party divided and visited Leeds and the West Riding (where they were guided by Dr. J. J. Jervis and Dr. J. R. Kaye), Middlesex and Willesden (Dr. John Tate and Dr. G. F. Buchan), and Staffordshire and Wolverhampton (Dr. W. D. Carruthers and Dr. R. H. H. Jolly). The three parties reassembled in London on March 9th for the study of health schemes and institutions in the metropolitan area, and on March 23rd were entertained at luncheon by the Government. Sir John Gilmour, Bt., D.S.O., M.P., Secretary for Scotland, who was in the chair, after giving the toast of the King and of the sovereigns of the kingdoms and the presidents of the republics represented, gave that of the guests. He welcomed them in the name of the Government, and expressed the hope that their visit would, through the personal intercourse which had taken place and through the friendly reception they had met with, contribute to the cause of peace, and by the interchange of opinions promote the development of public health science and administration. He coupled with the toast the name of Dr. M. D. Horst, medical officer to the city of Leyden, Holland. Dr. Horst, in his response, said that this visit, which had been rendered possible by the financial support of Mr. J. D. Rockefeller, would be productive of much good, and would, as the chairman had said, contribute to the cause of peace. Foreign countries ought to act together, like the organs of the body, for the good of the whole. The visitors were much indebted for the great pains taken in the arrangements for the tour to the Society of Medical Officers of Health and its indefatigable secretary, Mr. G. S. Elliston, and also to many individuals whose hospitality had rendered the visit most agreeable. He praised the public health administration of this country and the judicious way in which it was co-ordinated through the Ministry of Health. He commended in particular the progress that had been made in school hygiene and in the care of defective children; there was, however, one respect in which Great Britain was lamentably behindhand, and that was in vaccination. It appeared that a large proportion of the children attending school were unvaccinated. So serious was this that other countries had been compelled to take notice of it, and in his own country, where a bill had been introduced to enforce revaccination, one of the chief arguments used in its support was the unvaccinated condition of certain neighbouring States. It was a strange thing to find the country of Jenner in this category, but other countries had to face the fact. Turning then to general principles, he said that it was very necessary for the State to take a part, not only in public health administration, but also in the scientific study of hygiene. But too much State interference was to be deprecated. The spirit of science was the spirit of liberty, and there was a risk that State interference, if not judicious and well timed, might have the effect of retarding progress. He concluded by proposing the toast of His Majesty's Government, which was acknowledged by Sir John Gilmour in his own name and in that of Viscount Peel, First Commissioner of Works, who was also present.

THE SUFFIX "-ITIS."

IT is very generally assumed by medical men and by many of the general public that the suffix "itis" implies inflammation, that etymologically "appendicitis" means inflammation of the appendix and "arthritis" inflammation of a joint. As long ago as 1886 a radical newspaper, desirous of ridiculing the special constables whom the Government of the day had enrolled to cope with the Trafalgar Square rioters, headed an article "Truncheonitis," any stick being good enough with which to beat the Home Office dog. In this instance the subject of the article was not "inflammation of a truncheon," but what might be called "the truncheon disease." Recently, in an address to the History of Medicine Section of the Royal Society of Medicine, Dr. J. D. Rolleston said that "Bretonneau invented the new word 'diphthérite,' derived from the Greek διφθέρα, meaning a skin or leather coating." Boisseau attacked this term "on the ground that it must

mean 'inflammation of a skin.' Bretonneau, however, who was a better Hellenist than his critic, pointed out in the supplement to the treatise on diphtheria that the termination 'itis' did not really indicate inflammation, but was merely a feminine adjective often used as a substantive, the word *νόσος* [disease] being understood, so that 'diphtheritis' merely meant the pellicular disease." Since Bretonneau's time other writers have pointed out the mistake of Boisseau, who, however, was not alone in making it. In the *New English Dictionary* (in the volume H to K, published in 1901), under the heading "Itis," the true meaning of this suffix is stated. The Greeks used the word *ἀρθρῖτις* (arthritis) to signify, not inflammation of a joint, but disease affecting a joint, and similarly *νεφρῖτις* (nephritis), *πλευρῖτις* (pleurisy), *ῥαχῖτις* (rachitis) for disease of the kidneys, the chest wall, and the spine respectively, without any relation to inflammation. The history of the recurrent discussions of the meaning of "itis" is a good example of wasted effort, for the whole question had been settled as early as 1826 in the excellent *Kritisch-etymologisches medicinisches Lexikon* of L. A. Kraus, published in Göttingen and Vienna in that year. Under the heading of "Arthrodynia=Arthritis" the true meaning is given, and comment is made on the "new" custom of using the suffix to indicate inflammation. Again, under "Iritis" the custom of misapplying the termination "itis" is further condemned as a neologism, and particularly its use with roots of Latin origin, such as conjunctivitis and many others. "Diphtheritis" does not appear in the *Lexikon* of 1826, but in the appendix published six years later it is to be found with the primary meaning, "inflammation of a membrane," and the secondary, "according to Bretonneau and others=laryngitis, tracheitis, etc." It is to be feared that, however much we may regret the inaccuracy of the present usage, based as it is upon mere ignorance, it is too late to correct it, and we must submit to seeing medical literature disfigured by such monstrosities as "diverticulitis." It is an axiom of economists that bad money in circulation will always drive out and replace good money, and it has sometimes seemed to us, in our more pessimistic moments, as if a similar law regulated the use of words, as shown in the disappearance of "trustworthy" and its replacement by "reliable," despite the gallant and protracted defence made by the *Times* and some other papers.

THE F.M. AND P.G.A.

THE discussion on post-graduate teaching in London, promoted by the Fellowship of Medicine and Post-Graduate Association, was quite well attended, and, as will be seen from the report at page 613, was adjourned until April 8th. The date is perhaps not very well chosen, as it will be the Wednesday before Good Friday. Still, it may be hoped that if another day cannot be found there will be a good attendance on that occasion. The arrangements for the meeting last week left something to be desired. The honorary secretaries had issued a circular letter stating that the object of the meeting was to ascertain how the convenience and requirements of those who wished to pursue post-graduate study in London might best be met; it was added that, after a brief account of the aims and objects of the Fellowship and of its present arrangements for co-operating with hospitals, there would be a discussion, when criticisms of the existing arrangements and suggestions for improvement would be welcomed. The letter asked persons addressed, if unable to be present, to send a written expression of their views. To those attending the meeting last week a typewritten document was given on entering the Barnes Hall of the Royal Society of Medicine. This document contained a list of fourteen opinions and suggestions received; it was headed "Fellowship of Medicine and Post-Graduate Association," and, judging from some of the speeches, many of those who attended must have thought that the document contained a plan favoured by the executive of the Fellowship. After brief opening statements by the chairman and one of the honorary secretaries, statements were made by a representative of the Director-General R.N., and by Sir William Leishman, Director-General of the Army Medical Service, setting out the plans for post-graduate study in force for medical officers of those two services. These statements induced Mr. Zachary Cope to express the opinion that some national scheme ought to be set up whereby civil practitioners who felt the need of a "refresher" course could have adequate opportunity for taking it. This, of course, was very good counsel, but it is what all those interested in post-graduate study in London have been striving to achieve for the last six years without the degree of success which so much energy and good will ought to have attained. One speaker, indeed, declared that he did not know whether there were two bodies—the Fellowship of Medicine and the Post-Graduate Association—or a single body formed by a combination of the two. No doubt he ought to have known, but that he did not seems to argue some defect in propaganda, or at least in the preparations for the meeting; those attending would have profited more from a brief printed statement of the methods of the combined association, its successes and failures, than from the paper of disjointed suggestions with which they were presented. We hope that this defect will be remedied at the adjourned meeting. As has been said, one of the objects of the promoters of the meeting was to learn what sort of post-graduate facilities general practitioners desire, and upon this head a certain amount, but only a small amount, of information was tendered. There is, however, the other side of the matter, and that is, what can be offered without disturbing the arrangements for undergraduate instruction, which is the main purpose of the medical schools. Upon this point we may, when the discussion is resumed, hope for enlightenment from Sir Thomas Horder and Sir Holburt Waring, who respectively proposed and seconded the motion for adjournment.

THE TAUNGS SKULL.

AT a meeting of the Royal Physical Society of Edinburgh on March 16th, when Dr. James Ritchie was in the chair, Professor Arthur Robinson lectured upon the Taungs skull, described by Professor Dart of the University of Witwatersrand in *Nature* and discussed by Sir Arthur Keith in our issue of February 14th (p. 325). Professor Robinson compared the photographs and tracings published by Professor Dart with photographs and tracings of some of the chimpanzee skulls in the Edinburgh University Anatomy Museum, and especially those of four skulls of chimpanzees of the same age as the Taungs skull. Professor Robinson considered that the Taungs skull differed less from one or other of the four specimens of chimpanzee skulls than the extremes of the four differed from one another. In his opinion the Taungs specimen was the distorted skull of a chimpanzee just over four years old, probably a female.

THE MENTAL AFTER-CARE ASSOCIATION.

THE Mental After-care Association was established forty-five years ago through the exertions of the late Rev. Henry Hawkins (then chaplain at Colney Hatch Asylum) with the support of Sir James Clark, M.D., Drs. Bucknill, Lockhart Robertson, Hack Tuke, and later of Lord Shaftesbury. The annual meeting was held, by the hospitality of the Clothworkers' Company, at their hall in Mincing Lane, E.C., on March 18th. The chair was taken by the president of the association, Sir Charles Wakefield, Bt.,

C.B.E., who opened the proceedings by giving a brief account of the recent activities of the association. They had, he observed, been much increased in recent years, and had entailed considerable increase of expenditure, with which, unfortunately, subscriptions had not kept pace, so that it had been necessary to encroach on the financial reserves. The value of its homely, kindly work was increasingly recognized, and it was more and more resorted to by Poor Law and other local authorities throughout the country; it was greatly to be desired that funds might be forthcoming in connexion with possible changes in lunacy administration. The valuable services of this association and the kindly personal attention of its officers are greatly appreciated by convalescents, and it is much to be regretted that there has been of late a tendency to decline in private contributions towards assisting a return to such industrial conditions as they are capable of on the threshold of workaday life, when emerging from a period of mental confusion. The adoption of the report was proposed by Dr. Henry Rayner, for many years the chairman of the council. He stated that during the year (the forty-sixth of the association's existence) there had been an increase of 13 per cent. in the number of cases assisted. In this increase are included a considerable number of mental patients treated to recovery in Poor Law infirmaries, mental clinics, and out-patient departments of general hospitals. This was seconded by Sir Frederick Willis, K.C.B., Chairman of the Board of Control, who spoke sympathetically of the good work of the association, and expressed the hope that it might receive some recognition in any forthcoming lunacy legislation. The motion having been carried, the treasurer (Sir Maurice Craig) presented a report on the financial position of the association, which, he said, was unsatisfactory owing to the excess of expenditure over income in the past year and for the two preceding years. This was a source of great anxiety to the council. In 1923 the expenditure exceeded the income by £803 6s. 8d., and the council was obliged to sell stock to meet this; and in 1924 the excess amounted to £1,163 3s. 3d. The bulk of the expenditure was for the cottage homes to which the patients are sent to consolidate convalescence, and as this expenditure had to be met week by week it was impossible to contract any indebtedness in connexion with it. The motion for the adoption of the report was seconded by Mr. Lionel Faudel Phillips (honorary treasurer of Bethlem and Bridewell Royal Hospitals). The re-election of officers was proposed by Dr. Wolseley-Lewis (medical superintendent of Maidstone Mental Hospital), seconded by Dr. Percy R. Smith, and carried. A generous donation of £500 from the president (Sir C. Wakefield) towards the necessities of the association, and a contribution from the Clothworkers' Company of £10 10s., were announced. During the past year H.R.H. the Prince of Wales has graciously consented to become the patron of the association, following the example of His Majesty the King, who had subscribed £100 last year to its funds.

THE ANNUAL MEETING, BATH, 1925.

THE committee responsible for the organization of the Pathological Museum is anxious to secure the co-operation of the officers of the various scientific Sections at the forthcoming Annual Meeting in Bath of the British Medical Association next July. The committee will be glad to take charge of, and place in the museum for exhibition, any specimens, casts, photographs, diagrams, or microscopic slides during the time they are not required by those who are reading papers or taking part in the discussions. Every care will be taken of specimens, and the contents of the museum will be insured. We are asked to announce also that active preparations are being made for ladies' sports in connexion with the Annual Meeting at Bath. The local golf and tennis clubs are making the visitors honorary members, and it will greatly assist in the arranging of matches and competitions if intending players would send their names in advance to Mrs. Doveton, 16, Queen Square, Bath, who is the chairman of the Ladies' Sports Subcommittee.

THE TEACHING OF INFANT CARE TO SCHOOLGIRLS.

SINCE the memorandum (Circular 758) prepared by the Medical Department of the Board of Education was issued in 1910, the interest in maternity and child welfare has enormously increased, and its importance has been more generally recognized. In a new memorandum (Circular 1353) on "The teaching of infant care and management to schoolgirls"[1] we find the following passage, which may be taken to epitomize the Board's point of view: "If it be granted that the mother does not possess an instinctive knowledge of infant management, and may make disastrous blunders if she tries to bring up her baby by the light of nature, it is evident that at some period of her life she must learn the art and practice of mothercraft. What is the best time for such teaching? Should she wait until the baby is born and the health visitor comes to advise her? Should an endeavour be made to interest all newly married women in the welfare of the children who may come to them? Should instruction be given to young women before marriage? Or, should we begin with the schoolgirl? Something may be done at any and all of these stages, but it seems desirable that the elements of this knowledge should be acquired while the girl is still at school. This is the only time when we can make sure that she shall have some teaching in mothercraft." The Board expresses an earnest hope that mistresses responsible for girls who are approaching the end of their school life will consider what teaching such girls may properly receive in the care of their own health and in the management of infants and little children. The teaching of infant care in public elementary schools is discussed under the following headings: the nature of the course, the teacher, when the course should be given, and where infant care should be taught, including co-operation with infant welfare centres. Since different localities and personalities must always produce their own particular problems, the Board has refrained from making fixed regulations upon this subject. Rather has it emphasized the elasticity of its suggestions, leaving much to the initiative of individual mistresses. Medical officers engaged in maternity and child welfare work will, we believe, welcome an opportunity to co-operate with the schools and to give all possible assistance in facilitating the teaching of so important a subject. The memorandum closes with a brief recommendation for the teaching of infant care in secondary schools and in day continuation schools. In the interest of the health of the community it is to be hoped that the teaching of infant care will shortly be included in the curriculum of all schools for girls.

THE March number of the *Canadian Medical Association Journal* contains a full report of the Conference on the Medical Services in Canada arranged by the Canadian Medical Association, and held in Ottawa from December 18th to 20th, under the chairmanship of Dr. Alexander Primrose, C.B. Among the subjects discussed were medical education and the conditions of issuing and controlling licences to practise medicine, past-graduate medical education, the need of a full-time local health organization throughout the country, health insurance, and maternal mortality. All the provinces were represented, and also the medical colleges. It was unanimously decided that the conference should be held every year.

[1] Circular 1353. Issued by the Board of Education. London: H.M. Stationery Office. 1925. (Medium 8vo, pp. 14. 2d. net.)

THE HEALTH OF THE ROYAL AIR FORCE IN 1923.

THE Report on the Health of the Royal Air Force for the year 1923,[1] just published, is an admirably compiled document. The vital statistics are so tabulated as to show the incidence of sickness in great variety of detail, contrasting favourably in this respect with the recently published Army Report for 1922.

The ratio of admissions to hospital for the whole force was 473.8 per 1,000 in an average strength of 29,771, as compared with 514 in 1922 and 497.3 in 1921. If, however, trivial cases of sickness of less than forty-eight hours' duration are added the ratio exceeds that of the previous years, but the increase is due entirely to trivial cases in the United Kingdom. Injuries were the chief cause of admission, followed by diseases of the upper air passages, sandfly fever, and malaria. Venereal diseases, which caused the highest ratio of admissions in the army in 1922, accounted for comparatively few cases, the ratio being 23.8 per 1,000 in the United Kingdom, 44.3 in the Mediterranean littoral, 21.9 in Iraq, and 21.1 in India. These figures are in marked contrast with 254.2 per 1,000 in the Army of the Rhine and over 100 per 1,000 amongst troops in Gibraltar, Egypt, and Malta in 1922; and in marked contrast also with Air Force sickness during the later years of the war and after the armistice.

The high incidence of injuries was chiefly due to athletics, which accounted for 35.6 per cent. of the total injuries. Flying accidents accounted for 6.3 per cent. only of the injuries, practically the same as in 1921 and 1922. The deaths from flying accidents were, however, considerable—46 in 112 accidents, as compared with 50 in 102 accidents in 1922. Of the 46 deaths, 33 were amongst officers and 13 amongst airmen; 38 injuries and 1 death occurred from swinging the air screw, as compared with 23 injuries in 1922 and 35 in 1921; several accidents with 5 deaths occurred in connexion with motor vehicles. In a table (VIII) showing the incidence of disease and injury amongst the different trade groups of the R.A.F., the driver group showed a high injury ratio and the highest ratio of sickness. The venereal rate in this group was markedly high, 34.4 per 1,000, as compared with only 1.3 amongst officers, cadets, and air pilots. It may be noted, however, that the venereal ratios in this table seem to exclude syphilis, as they do not correspond with the ratios for venereal diseases in the two following tables.

A large proportion of the total sickness in stations abroad was due to malaria in Basrah and sandfly fever in Hinaidi and Mosul. In Hinaidi sandfly fever caused the high admission rate of 640 per 1,000, and for all stations in Iraq a rate of 301.6 per 1,000.

A feature of the statistical tables of diseases generally and of tropical diseases in particular is the disintegration of disease groups into individual diseases, as used to be the case in the old army reports. The value of this can hardly be overestimated, and it is gratifying to find such group diseases as malaria and dysentery disintegrated into their different causative agents and into primary and recurrent attacks. An interesting conclusion that can be drawn is that the bacillary type of dysentery appears to be confined almost entirely to the Mediterranean littoral and the amoebic type to Iraq and India. Only 20 cases of typhoid fever with 3 deaths are recorded, all but 6 in Iraq. Fourteen of the cases are stated to have been fully protected by prophylactic inoculations. A severe epidemic of cholera broke out in Abadan in Persia and spread rapidly throughout Iraq during the year, and an epidemic of plague occurred in Basra; 4,078 inoculations against cholera and 1,000 against plague were carried out amongst R.A.F. personnel, and no cases occurred.

Some statistics of measurements and other physical data in connexion with candidates for cadetships, tests of serving officers, and medical examination of recruits, are tabulated in the report. A new classification of officers in respect of their medical fitness was adopted in 1923, the letter A representing fitness for aerial duties and the letter B fitness for ground duties, with numeral subdivisions under A to represent fitness for full or limited flying duties and for combatant and non-combatant passenger duties, and lettered subdivisions under both A and B to represent fitness for home service only, temporary unfitness, or permanent unfitness. Thus an officer labelled A_2h Bh would indicate limited fitness for flying at home only and fitness for ground duties at home only. The tests applied in 1923 and 1922 at home and abroad are stated to have given great uniformity in results, indicating consistency in technique. With regard to recruits, the causes of rejection were chiefly dental defects, poor physique, diseases of the heart, deformities of the feet, defects of vision, and middle-ear disease; 4,288 out of 12,092 recruits were examined by civil medical practitioners, and 1,752 rejected. Excluding these 1,752, the balance of 10,340 were examined by R.A.F. medical officers and 4,935 rejected.

The report concludes with an account of the aerial transport of some 200 cases of diarrhoea and dysentery from a column of British troops operating in Northern Kurdistan to Baghdad in Vickers-Vernon aeroplanes. The evacuation was carried out over a flying mileage of 9,615 miles in $128\frac{3}{4}$ hours flying time. One aeroplane with sick crashed in inaccessible country, but was brought to the ground so skilfully that none of the sick were injured, and one patient actually had to be roused from sleep after the aeroplane had come to rest.

Other features of interest in the report are the summaries of the sanitary conditions of R.A.F. stations and the research work in connexion with phlebotomus fever and the bionomics of the sandfly. Attempts were made to transmit by sandflies the infective agent of Oriental sore, but the results were negative.

If the reports on the health of the Royal Air Force continue on the same lines as that under review they should provide in time a valuable series of comparative statistics. One point, however, must be noted. The ratios are based on small average strengths in the different geographical areas, and are consequently liable to great fluctuations from minor causes, much more so than ratios based on large numbers. In forming comparisons this fact will have to be borne in mind.

[1] Report on the Health of the Royal Air Force for the Year 1923. London: H.M. Stationery Office. February, 1925. Air Publication 1103. (8vo, pp. 71; 4 charts, 35 tables. 3s. 6d.)

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee forty-two cases were considered and £642 11s. voted to forty applicants. The following is a summary of the new cases relieved.

Widow, aged 51, of M.D.Glas. who died in May, 1924. She is left with three sons; the eldest is a dental apprentice, the second a junior clerk at 15s. a week, and the youngest is at school. Applicant's only income is a share of a trust, £32, and the estimated profit from one boarder (5s. a week); other charities have granted her £38. Rent and rates come to £126 per annum, and the house is rented to May, 1925. Applicant is endeavouring to find a smaller one. Voted £20.

Daughter, aged 59, of M.D.Edin. who died in 1857. For the last thirty years she has maintained herself by painting Christmas cards, but is now hemiplegic. Only income an annuity of £50; rent £27 per annum. Voted £20.

Daughter, aged 28, of M.B.Edin. Applicant has been trained as a milliner, and her aunt is now endeavouring to get her to a cousin in Montreal, who has a millinery business; the money has been raised with the exception of £20. Voted £20.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

Scotland.

Achievements of Preventive Medicine.

An address was delivered by Dr. Walter Elliot, M.P., Under Secretary of Health for Scotland, to the students of the Anderson College of Medicine, Glasgow, on March 12th, dealing with the achievements of preventive medicine. Mr. J. B. Kidston, chairman of the governors of the college, presided, and the occasion was the closing of the winter session and presentation of class medals. Dr. Elliot at the outset remarked that in the last century the problems of preventive medicine had to do with the conquest of infections. Between 1801 and 1851 the population had increased from 77,000 to 345,000 (346 per cent.), and another 650,000 people came into the town during the second half of that century. The first quarter of a million increase was accompanied by a tremendous increase in the death rate, and the last 600,000 by an equally striking decrease. The expectation of life of a 10-year-old boy in Glasgow in 1821-27 had been 42 years; in the period 1832-34 it had fallen to 37 years; in 1870-72 it had risen again to 40 years; while at the present day it was as high as 50¾ years. Half of every thousand boys born in Glasgow as late as 1870 were dead at the age of 25 years, whereas at the present day half of them were alive at 58 years. Estimating that improvement in round figures, it meant that the present population of the city would live an aggregate of twenty million years more than a similar number half a century ago; and averaging £50 value for the year, that meant an increase of something like £1,000,000,000 in the life capital of the city. It could not be said that people were being kept alive who would be better dead, seeing that the improvements were more at the age of 25 years than at that of 70 years. This achievement of preventive medicine was largely due to the conquest of infections. In England and Wales between 1871 and 1880, roughly speaking, 470,000 people died from the great group of fever diseases, whereas from 1911 to 1920 the deaths not only did not increase, but were reduced to 243,000. The same thing applied to tuberculosis, the deaths for the respective decades being 697,000 and 513,000. On the other hand, measles and whooping-cough had not been conquered. In England and Wales between 1871 and 1880 there were 91,000 deaths from measles, while in the period 1911-20 the numbers rose to 98,000. Against these figures he would mention small-pox, the deaths from which fell from 57,000 in the first period to 140 in the second, and typhus fever, for which the figures were respectively 13,000 and 50. Measles was one of the chief killing diseases in Great Britain, and was responsible for over 100,000 deaths in Scotland alone. It was impossible to treat all cases of measles in hospital; he thought only 25 per cent. should have hospital treatment, and that the remainder should be dealt with individually; he favoured better nursing and visiting, and a more rigid and earlier notification of cases. Speaking of London, he said that London was not recruited from the country, the increase of population coming from within the city, and yet the death rate in London was far below the death rate in the very heart of many of the Scottish counties. Emphasizing the necessity for purifying the air in cities, he said that the death rate in London on November 17th, 1923, was at the rate of 10.9 per 1,000, on November 24th it was 11.9, and on December 1st it rose to 15.4, solely owing to an intense and heavy fog prevailing during November 24th and 25th. So far preventive medicine had been helpless before great epidemics such as influenza, and they had as yet no clues for many of the individual diseases which had to be attacked.

Presentation to Sir Harold Stiles.

Sir Harold Stiles, who recently retired from the chair of clinical surgery in the University of Edinburgh, has been presented by the students with a beaten silver rose-bowl. Mr. J. B. Colquhoun, president of the Students' Representative Council, who presided at the gathering, referred to the work Sir Harold Stiles had done for students in the University Court and to his founding of the Alumni Association, Mr. A. W. Sanderson, in making the presentation, said it was the privilege of the students to have organized the gift. It was, he said, by courage, sacrifice, and perseverance that Sir Harold Stiles had added fresh lustre and dignity to the chair of clinical surgery, and his name would be added to the illustrious list of former occupants—Lister, Annandale, and Caird. Sir Harold Stiles expressed his gratitude for the hearty reception he had received that day. He said that when he became a medical student at Edinburgh forty-five years ago he vowed never to leave the city unless obliged; he had fulfilled that vow. In acknowledging the gift on behalf of Lady Stiles and himself, Sir Harold said that it would be preserved as a priceless heirloom and token of their goodwill and mutual affection.

Maternity Treatment by Medical Women in Edinburgh.

The annual meeting of the Edinburgh Hospital and Dispensary for Women and Children was held on March 20th at Bruntsfield Hospital, Edinburgh, when Mrs. J. C. Johnston was in the chair. The annual report, presented by Lady Walker, referred particularly to the new Elsie Inglis Memorial Hospice at Spring Gardens, Edinburgh. Work on the new maternity hospice had been considerably retarded by a strike, but the building would be ready to receive patients in the coming summer. The problem of providing a hospice for ante-natal and post-natal clinics had been partly solved by the purchase of a steel double house, but further extension of the out-patient premises would soon be necessary, because attendance at the ante-natal clinics had more than doubled during the past two years. Funds were urgently needed to provide one or two extra wards at the Bruntsfield Hospital in order to relieve the pressure on the gynaecological beds. The financial report, presented by Miss Eveline Maclaren, LL.B., stated that the ordinary expenditure at Bruntsfield Hospital, the dispensary, and the hospice had amounted to £7,903 and the income to £7,570, leaving a deficit of £333, which, however, was less than that of the previous year. A total sum of £27,445 had been paid up to date for the new hospice. Dr. A. B. Lothian, one of the attending medical officers, said that while medical women no longer needed to demand encouragement of their work, that more happy state of matters was not entirely an advantage. The woman doctor was quite a professional rival to the male doctor, and, partly owing to that and to the increasing number who qualified, it was difficult for women to get hospital training. She therefore urged the need of a fully equipped hospital for the training of women, and this meant more ward accommodation in the hospital. Women doctors were now beginning to find themselves able to organize team work, and this development was increasing the claim of their dispensary on the good will of its supporters. The chairman said that the new buildings, when completed, would give women doctors an unrivalled opportunity to pursue that line of maternity work in a definite intensive hospital service in a part of Edinburgh which had never had a proper hospital service, or had always been so far away from any out-patient department that hospital work had not affected the lives of the people.

Notification of Chicken-pox in Edinburgh.

In view of the prevalence of small-pox in several districts in England, the Infectious Diseases (Notification) Act, 1899, is to apply within the city of Edinburgh, so as to include chicken-pox, from March 23rd till June 30th, 1925. The co-operation of the medical officer of health in any case of doubtful diagnosis will be cordially provided. The number of cases of chicken-pox in hospital during the week ending March 14th was 7, as compared with 9 in the previous week; 110 cases of measles were notified during that week, and 123 cases of whooping-cough; the number of fatal cases of measles was 6 and of whooping-cough 7. The principal other diseases notified were scarlet fever (57) and diphtheria (42).

MEMORIAL TO DR. EBENEZER DUNCAN.

A memorial to the late Dr. Ebenezer Duncan, one of the founders of the Victoria Infirmary, Glasgow, and first physician to the institution upon its opening in 1890, was recently unveiled by Sir Hector Cameron. The memorial, which is installed in the infirmary, takes the form of a bronze bearing the following inscription: "Erected to the memory of E. Duncan, M.D., C.M., F.R.F.P.S.G., to whose persistent advocacy for the need for an infirmary on the South-Side of Glasgow the Victoria Infirmary owes its origin, and who for thirty years was one of its physicians."

GLASGOW HOSPITAL SUNDAY FUND.

The Glasgow Hospital Sunday Fund has now been in operation since 1894. The largest sum which had been obtained by direct appeals to the churches and similar institutions by the infirmaries of the city was £2,090. In 1894 the Hospital Sunday Fund raised £3,640, and in succeeding years the amount steadily increased until in 1920 the sum obtained was £11,877. As the result of trade depression since that time this level has not been quite maintained, but for last year the amount available was £10,396, and of this £10,100 was distributed to the three infirmaries in the following proportions: Royal Infirmary, with 726 beds, £4,676; Western Infirmary, with 548 beds, £3,529; Victoria Infirmary, with 294 beds, £1,893.

BOVINE TUBERCULOSIS.

We have received a report on the detection of bovine tuberculosis from Mr. Howard Jones, of the veterinary department of the city of Edinburgh, and secretary of the Scottish Metropolitan Division of the National Veterinary Medical Association. Mr. Jones states that it has been his practice for some years to examine with the greatest care any bovine carcass in which tuberculous lesions were discovered in the liver substance or its hepatic and portal lymphatic glands. He cites the following incident and points out that it illustrates the extraordinary distribution of tuberculosis by way of the lymphatic system, which is frequently to be observed when the liver substance or the corresponding lymphatic glands are affected. As an example, the conditions found in a bullock three years old, in apparently perfect health and prime condition, having a live weight of 12 cwt. 1 qr., are described. Taking the organs in their order of removal it was found that the right and left retropharyngeal lymphatic glands were tuberculous, that two mesenteric lymphatic glands were infected, that the hepatic and portal lymphatic glands were calcifying and caseating, and that there was one small tuberculous lesion in the liver substance. The stomach, omentum, spleen, kidneys, the lung substance, and the mediastinal lymphatic glands were normal, but one right bronchial gland was tuberculous. Mr. Jones points out that to anyone acquainted with meat inspection this would not appear to be a widespread infection, and is a combination of lesions comparatively often found in home cattle. It is frequently unaccompanied by other lesions, but as this is not invariably the case a minute scrutiny is always necessary when this combination is found. On superficial examination the carcass showed a perfect state of nutrition, and to all appearance the animal was perfectly normal. There was no trace of tuberculosis in either of the serous membranes, nor were any enlarged lymphatic glands to be seen in other parts. Mr. Jones remarks that from his knowledge of the prevalent laxity in many towns, and of the need for more systematic meat inspection, particularly in rural areas, he has little doubt that in some places such a carcass would have passed into a butcher's shop without further examination. A careful investigation of the lymphatic glands revealed widespread evidence of active tuberculosis. In consequence of these findings the carcass, with all its organs and offal, was condemned. Mr. Jones considers the existence of such cases as this to be evidence of the necessity for instituting public abattoirs throughout the country, for eliminating private slaughterhouses, and for appointing properly trained and qualified inspectors to examine and pass judgement upon meat supplies.

DUNDEE ROYAL INFIRMARY.

The work of Dundee Royal Infirmary during the year 1924 was reviewed by Mr. Drummond Taylor, chairman of the directors, at a meeting held on March 9th. The total number of patients treated in the wards during the year was 7,270, an increase of 650 over the number for 1923. The wards were constantly filled to overflowing, and in several departments there were long waiting lists, so that a considerable extension of the existing accommodation would have to be faced at an early date. The last extension (the Caird building) had been opened in 1907, and since that time the number of patients had increased from 3,651 to its present figure, the daily average under treatment having increased from 238 to 338. The income for last year amounted to £30,000 and the expenditure to almost £41,000. Last year the Dundee Convalescent Home showed a deficit of £877, and the Sidlaw Sanatorium one of £586.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

At a special meeting of the Board for the hearing of penal cases, Dr. James Haig Ferguson in the chair, a certified midwife was cited for failure to take and record the pulse and temperature of her patients, and for other breaches of the rules. The Board found the charges proved, and instructed the secretary to remove the name of the midwife from the Roll and to cancel her certificate. At the same session a certified midwife appeared in answer to charges of having neglected to give the necessary directions for securing the cleanliness, comfort, and proper dieting of a patient during the lying-in period, and having discontinued her attendance on the case on the third day, and other breaches of the rules; they were found proved, but to give her an opportunity of proving amendment a decision was postponed for reports from the local supervising authority.

England and Wales.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE annual meeting of the General Council of King Edward's Hospital Fund for London, to receive the accounts and report for 1924, was held at St. James's Palace on March 17th, H.R.H. the Prince of Wales taking the chair. The total receipts were £412,472, of which £112,240 was from the estate of the late Mr. John Wells and £50,203 from that of the late Sir Thomas Sutherland. Other legacies brought in £35,563; and the general receipts, which amounted to £214,242, included £19,751 from annual subscriptions, £2,659 from donations, £14,500 from the League of Mercy, £15,000 from the British Charities Association, £142,232 derived from investments, and £200 from the trustees of the Bawden Fund. The amount of the ordinary distribution was £235,000, as in 1923. The grants to hospitals for extensions and improvements increased by nearly £5,000, and there was a corresponding reduction in the grant for maintenance. The amount distributed among hospitals, convalescent homes, and sanatoriums during the last ten years has been £3,020,438. During the year the amount spent on administration was £10,614, as compared with £8,904 in the previous year. In addition to the cost of the ordinary administrative work, this amount included the work of the central body, which considerably increased since, under the report of Lord Cave's Committee, the King's Fund became the Local Voluntary Hospitals Committee for London. The report of the Ambulance Cases Disposal Committee, received in April, 1924, was included in our issue of April 12th (p. 684): it contained recommendations that the Distribution Committee should consider whether hospitals applying for a grant provided adequate bed accommodation for ambulance cases; also that inadequately equipped hospitals should not be retained on the list of hospitals used by the police and ambulance authorities; and, lastly, certain suggestions were made for changes in the law and the procedure in connexion with Poor Law institutions. The first two proposals were put

into force by the authorities concerned, and the third was still under the consideration of the Ministry of Health. In May the King's Fund co-operated in an inquiry, begun by the Voluntary Hospitals Commission at the request of the Minister of Health, with regard to the need for hospital extension, including the provision of accident beds. A questionary was issued by the King's Fund, and a report of the information obtained was presented to the Commission in November. In July the General Council decided to make use of the Wells legacies in aid of schemes of extension and improvement, and by the end of the year grants amounting to £81,000 had been approved, thus providing for an additional 301 beds, of which 53 were to be reserved for accident cases. The grants were for the most part accompanied by conditions designed to stimulate and reward efforts made by the hospitals themselves. The Wells legacies also enabled the King's Fund to enlarge the area of its operations from a radius of nine miles from Charing Cross to a radius of eleven miles from St. Paul's Cathedral. In 1919 the King's Fund issued the report of a special committee of inquiry into the question of pensions for hospital officers and nurses, and in this connexion a conference will be held shortly between the Hospital Officers' Association, the College of Nursing, the British Hospitals Association, and the King's Fund. The work of the Propaganda Committee during the year was chiefly concerned with educational programmes rather than finance. A film illustrating the work of a modern hospital was displayed at Wembley Exhibition as part of the Government programme. In October, 1924, a scheme of lectures on the work of modern hospitals was drawn up for the use of colleges and secondary schools, a panel of experts was compiled, and several lectures had already been given. The committee reported that it had secured a large number of voluntary workers, and had been assisted by the press and the co-operation of many hospital representatives.

The Prince of Wales, addressing the Council, pointed out that the accounts for the year were better than had been anticipated, and were an encouragement for the present year. The claims on the King's Fund would continue to increase, both in consequence of new hospital extension schemes and the enlargement of the area with which the Fund was concerned. The support of the public would be obtained in increasing amount when the need was realized; in this respect the value of the propaganda work of Lord Burnham's committee was very great. The Hospital Economy Committee was still engaged in the work of bringing up to date the revised uniform system of hospital accounts. His Royal Highness stated that during his absence from England his powers as president would be exercised by a committee consisting of Lord Donoughmore, Lord Cave, and the Governor of the Bank of England.

Venereal Disease Arrangements in London.

The London County Council on March 17th received a report from its Public Health Committee on the working of the venereal diseases scheme during 1924. The councils of six adjoining counties and of three adjoining county boroughs participate in the London scheme, but the cases which come from the London county area are reckoned at 80 per cent. of the whole. The total number of new cases attending the clinics in 1924 was 25,573, of which 7,292 were found to be non-venereal. Of the venereal cases, those of syphilis numbered 6,626, those of gonorrhoea 11,350, and those of soft chancre 305. The total attendances at the clinics were 589,002, as compared with 555,509 the previous year. It is considered that the great increase in the ratio of attendances to new venereal cases points to the success which has followed the efforts made to secure the further attendance of patients so long as treatment is necessary. The number of bacteriological specimens examined at hospitals in 1924 at the request of and free of cost to medical practitioners was 24,797, a higher number than ever before; 405 practitioners are on the approved list for the supply free of cost of salvarsan or its substitutes for the treatment of patients resident in the county and for the prevention of the spread of the disease. It is proposed to continue the scheme for another year on the same basis as before. The total expenditure contemplated in the year 1925-26 is £122,810, compared with £124,050 for 1924-25, three-fourths of this sum being met by Government grant. The provision of £2,020 is to be made for publicity and propaganda work, and the National Council for Combating Venereal Diseases is again to be permitted to exercise such of the powers of the county council under the scheme in relation to propaganda work as are necessary for lectures, conferences, cinematograph exhibitions, and other occasions.

The Freedom of Weymouth Conferred on Two Medical Practitioners.

On March 19th the freedom of the borough of Weymouth was presented to Dr. J. Macpherson Lawrie, D.L., J.P., and Mr. H. H. Du Boulay, J.P. Dr. Lawrie, who began practice in Weymouth in 1883, has devoted himself particularly to the building of the Princess Christian Hospital, now the Weymouth and District Hospital. He was appointed a country magistrate in 1889, a member of the first Dorset County Council in 1892, and a deputy lieutenant in 1906. Mr. H. H. Du Boulay, now consulting surgeon to the Weymouth and District Hospital and to the Weymouth Eye Infirmary, has practised in Weymouth for nearly thirty years, particularly in connexion with the old Royal Hospital, now merged in the amalgamated Weymouth and District Hospital. The streets of the town were decorated for the occasion, and many speeches were made eulogizing the high services of the two new freemen of the borough of Weymouth and Melcombe Regis.

Royal Dental Hospital, London.

Much improved facilities for the treatment of children have now been obtained by the Royal Dental Hospital in London. At the annual general meeting of the governors, held on March 19th, the chairman referred gratefully to the help of Sir Oswald Stoll, who, by placing the Alhambra Theatre at the disposal of the hospital for a concert, had enabled a sum of over £600 to be raised for the children's department. The considerable enlargement has been effected partly by reorganization, and, to a certain extent, by rebuilding, and the special attention necessary in the case of children can now be more satisfactorily provided. The *x*-ray department has also been greatly extended, the work in it is expanding, and its value in diagnosing the more obscure diseases is becoming increasingly evident. The total number of attendances at the hospital during the past year was 54,950. A large proportion of the mortgage on the building is still outstanding, and the chairman appealed for efforts to be made to obtain a larger number of annual subscribers.

Ireland.

Relief of the Destitute (Irish Free State).

The Minister for Local Government has announced that the Commission to inquire into the relief of the destitute sick and poor, including the insane poor, will consist of Mr. C. H. O'Connor, formerly of the Local Government Board (chairman), Alderman Corish, T.D., the Right Rev. Monsignor Dunne, Senator Sir John Keane, Dr. Hennessy, T.D., Sir Joseph Glynn, the Rev. M. O. Murphy (Dublin), Senator Mrs. Wyse Power, Major Myles, T.D., Mr. P. Sugrue, Commissioner for Co. Leitrim. The terms of reference are:

With the object of devising permanent legislation for the effective and economical relief of the sick and destitute poor, to inquire into the laws and administration relating thereto, and particularly as regards the following matters:

1. To inquire into the adequacy and suitability of schemes which have been formulated under the Local Government (Temporary Provisions) Act, and make recommendations.
2. To advise as to whether the existing law and regulations as regards home assistance require alteration towards securing that due provision is made for the sick and destitute poor in their own homes without avoidable wasteful expenditure on healthy persons who are incorrigibly idle.
3. To examine the law and administration affecting the relief of the following destitute classes, and to make recommendations:

(*a*) widows and their children, (*b*) children without parents, (*c*) unmarried mothers and their children, (*d*) deserted children.

4. To inquire into the existing provision in public institutions for the care and treatment of mentally defective persons, and to advise as to whether more efficient methods can be introduced, especially as regards the care and training of mentally defective children, due regard being had to the expense involved.

5. As regards cost of relief of the destitute poor generally, to inquire as to whether any change in the law is desirable towards securing more equitable chargeability on local rates for persons who, having been in fact normally resident in one poor relief district, have become a charge upon the rates of another district.

HARVEY LEWIS BEQUEST FOR DUBLIN HOSPITALS.

Judgement was given in the case in which the claims of the Dublin hospitals had been heard in connexion with the disposition of a sum of about £22,000, available under the will of Mrs. Jane Isabella Lewis, widow of John Harvey Lewis, some time member of Parliament and high sheriff for County Kildare. By her will Mrs. Lewis directed that, after the death of certain life-tenants, the trustees should possess all the proceeds of the sale of her real estate in Ireland, upon trust, to lay out and expend the sum of £80,000 for erecting in Dublin a hospital in memory of her husband, to be called "The Harvey Lewis Memorial Hospital." She died within three months of the execution of the will—August 7th, 1904—and under the statutory provisions the total sum that would have been available for the charity from the real estate was not forthcoming. A Dublin cabman, William Browne, had been found to be the heir-at-law. On the disposition of the lady's personal estate it was found that from the general residuary estate only about £22,000 remained to be devoted to the erection and upkeep of a hospital, and the bequest could not, therefore, be applied for that purpose. The Court had to apply the sum as far as possible in accordance with the wishes of the testatrix, for which purpose all the Dublin hospitals were notified. Mr. Justice Meredith said that he was satisfied that the best way in which the fund could be devoted, in accordance with the views of the testatrix, was to complete the Royal Victoria Eye and Ear Hospital, Adelaide Road, Dublin, by building a proposed new wing. When the miscarriage of the original intention—that of erecting a new hospital—occurred, he felt that the project must be cut down to that of erecting a distinct part or wing of a hospital in Dublin, to be called "The Harvey Lewis Memorial Wing." He formed the opinion that it was imperative to keep the whole fund together. Counsel for the Attorney-General raising no objection, Mr. Justice Meredith allowed all the twenty-five claimants their costs out of the fund.

France.

[FROM OUR OWN CORRESPONDENT.]

REGARDLESS of all criticism, the Chamber has passed the bill establishing a system of general medical insurance. The Senate will be called to give its decision pretty soon, and in the meantime all our scientific and professional organizations are mobilized to prevent harm or injustice. At the Académie de Médecine Professor Weiss, the dean of the Strasbourg faculty, himself an Alsatian, urged his colleagues to oppose a system copied from one the results of which he had been called upon to observe at very close quarters. Professor Weiss was careful to avoid treading on political ground, but he opposed our traditional sense of freedom to "caporalisation." As a citizen he dreads what he called wholesale medicine. As a medical man he fears the power of that anonymous machinery, the great trusts. As a professor he shudders to think of the baneful influence such a law may have on the teaching of students, and more especially on the moral conditions of the practice of medicine. To sum the matter up in one word, for him insurance means commercialization. The insurance system as it is contemplated would, he considers, certainly lower the standard of the profession, but the principal sufferer will be the sick. Professor Weiss must certainly have felt that he was supported by the unanimous feeling of his colleagues in the learned Académie. He might have felt, too, the throbbing of the heart of the rank and file of the profession at large. What Professor Weiss left unsaid was that, though a question of such wide importance was at stake, our Académie de Médecine was not even asked to give its opinion or advice. Well, they are going to do so.

Antisyphilitic Vaccination.

Dr. Doleris on March 10th read a paper to the Académie on the work of Jauregui and Lancelotti of Buenos Aires, who have just arrived in Paris to ask that their experimental work may be controlled. They have produced in the llama experimental syphilis with an evolution quite comparable to human syphilis. Cerebral lesions are produced, hereditary lesions are observed, and cultures of treponema have been obtained. Experimental inoculation from man to animal has proved possible, and accidental inoculation from animal to man has occurred. Serotherapy was successful in the four cases that have been followed in men. In the discussion Dr. Jeanselme pointed out that the more striking the results the more severe must be the control. It is worth while to recall that in 1552 a Spanish historian, Gomara, wrote about a disease transmitted from llama to man and brought back to Spain by the expeditionary forces.

Professor Jacobaeus.

At the request of the association of the Paris faculty for the furtherance of medical relations, Dr. H. C. Jacobaeus of Stockholm delivered a remarkable lecture on thoracoscopy and described his method of cauterizing pleural adhesions in artificial pneumothorax. The process was illustrated by fine lantern slides, and the lecturer was received with great enthusiasm. The next morning he gave a clinical demonstration of his technique at the Hôpital Laënnec. May the success of such a visit help to pull down the Chinese wall of scientific nationalisms. A very gratifying symptom of the modern and liberal spirit of our old *alma mater* is the appointment of foreign assistants to our clinical professors. At the Enfants Malades Hospital Professor Nobécourt is giving his demonstrations to students with the able assistance of Dr. W. S. Copeman (M.B., B.Ch.Cantab.). This is certainly a rare opportunity given to our young confreres from abroad, and at the same time enables our students to come into contact with the spirit and methods of the British schools.

Antityphoid Vaccination in the Navy.

Interesting statistics have been published of the progress of antityphoid vaccination in the navy. It must be understood that our sailors are far more exposed to infection than soldiers in our army, being oftener employed in endemic centres. The navy morbidity was 1.9 per mille (as compared with 6.15 in 1912) and the mortality 0.09 (against 0.77). Vaccination is now performed by giving one injection only, generally with Le Moignic's lipo-vaccine. Formerly four injections with the vaccine of Chantemesse were given. The reactions are so mild as not to be worth mentioning. In some cases where there seems to be a contraindication Lumière's entero-vaccine is given by the mouth. Since 1915 not a single fatal accident has been recorded following vaccination. We can safely look forward to the time when typhoid shall be stamped out from the navy. Yet how often do we hear some fool asserting that medicine does not progress!

The Medical "Salon."

For the fifth time is being held an exhibition in Paris of works of art by medical men. Painting and sculpture are well represented, and the majority of works are well above the standard of amateurism. Some of the artists are highly reputed in our professional circles, and the catalogue brings together names such as those of Professor Hayem, Laignel-Lavastine, Caussade, Paul Legendre, Sabouraud. They remind us of our great Ingres the painter, who was never so pleased as when he was congratulated on his achievements as a violinist.

G. MONOD.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has this week passed the Army and Navy Estimates through report. During the debate on the Navy Estimates, on March 19th, Lady Astor referred to the prevalence of tuberculosis among writers in the navy, not only the British navy, but the United States navy. She said this was very difficult to combat, but she hoped the Government would leave nothing undone. No answer was returned from the Government Bench. The Consolidated Fund Bill was made the opportunity for important debates on moves towards European peace and on unemployment at home. The miner members of Parliament of the Labour party brought forward their Mines Minimum Wage Bill. The Summer Time Bill has had a rapid journey through Committee, but there is no progress to report on the Nurses Registration Bill or on the Mental Defectives Bill. The Therapeutic Substances Bill was read a third time by the House of Lords on March 19th and sent to the House of Commons. Lord Birkenhead, Secretary for India, introduced in the House of Lords, on March 19th, a Government of India (Civil Services) Bill which would exempt from submission to Indian legislatures certain proposals dealing with salaries, pensions, and payments; it was read a first time.

The House of Commons will adjourn for the Easter recess from April 9th till April 28th, when the Budget will be presented.

Medical Committee.

The meeting of the Medical Committee of the House of Commons, on March 24th, was attended by all medical members of Parliament save one. On a circular letter, which had been sent to all members of Parliament, the Committee discussed the claims for a legal qualification for osteopaths. Mr. T. Sinclair (Belfast) cited an unofficial statement from the General Medical Council, pointing out that the present medical qualification was laid down by Act of Parliament. The general opinion of the Medical Committee was that the views expressed in this statement should be made public. The Births and Deaths Registration Bill was again considered, and Dr. Fremantle arranged formally to move its first reading. Dr. Haden Guest brought forward a Bastardy Bill, prepared by the "Six Points Group" of women politicians, but the Committee decided that it could not support this bill in its present form.

Public Health Bill.

The Public Health Bill, a private member's measure to authorize the adoption by local authorities of health and miscellaneous powers already conferred on many municipalities by local Acts, was read a second time by the House of Commons on March 20th, without a division. In moving the second reading Mr. Womersley pointed out that eighteen years had elapsed since Parliament last passed an Act embodying public health provisions based on local Acts. Dr. Fremantle commended the proposal in the bill that in premises where the body of a person dead from infectious disease was lying, the person in charge of the premises must take reasonable steps to protect those who might come in contact with the body. He pointed out that the bill defined "dangerous infectious disease" as meaning only infectious diseases which were named in Section 6 of the Public Health Act, 1889. Many unpleasant and dangerous diseases had been discovered since 1889. However, another section of the same clause in the present bill authorized the Minister of Health by Order to declare any other infectious disease to be dangerous, temporarily or permanently, in one particular area, or generally; this would apply to diseases not named in the Act of 1889. It would, for example, include cerebro-spinal meningitis and tuberculosis. The bill was an essential preliminary to the consolidation of the public health law of the country, which all interested in the public health desired to see. At present it was almost impossible for anyone who had not made a special study of public health law and administration to find his way through the enactments of the last fifty years. He asked for a promise from the Ministry of a consolidating Public Health Bill within the next year or two.

The Parliamentary Secretary of the Ministry of Health, Sir Kingsley Wood, said the Government believed it was time the Public Health Acts were brought up to date and consolidated. The Ministry welcomed this bill, and would be glad to give it such facilities as might be needed to help it speedily to become law. The Ministry thought it necessary that a further bill should be introduced making a number of amendments in the Acts which experience had shown to be required. The preparation of this Government bill was well advanced, but as two Public Health Bills could not well be dealt with in one session, and as the Association of Municipal Corporations was anxious to promote the bill which was that day before the House, the Government had decided to defer its bill to 1926. It would be followed still later by a Consolidation Bill. Dr. Fremantle had called attention to the power which the present bill gave to the Ministry of Health to include other dangerous diseases. That was a very general power, and if it were exercised notification would follow, but the power was qualified by the word "dangerous." The Public Health Act did not include such dangerous infectious diseases as plague and dysentery.

Mr. Herbert Williams said they had seen in the present century one of the greatest miracles in the history of mankind—the cutting down of infantile mortality from something like 160 out of every 1,000 babies born to less than half that figure. This was the result of the public health work of local authorities under the powers conferred upon them by Parliament. The new powers conferred on all municipalities by this bill, such as the power to deal with verminous houses, would lead to a further advance. He asked whether the powers which the bill gave local authorities for dealing with watercourses would enable them to deal with the breeding places of flies and mosquitos.

The bill was read a second time without a division, and sent to a Grand Committee.

Indian Medical Service.

General Sir Richard Luce asked the Under Secretary of State for India, on March 23rd, the present strength of officers in the Indian Medical Service; how many of these were of European birth; how many recruits, European and Indian respectively, had been obtained for permanent service during the past twelve months, and how many for short service.

Earl Winterton replied that the present figures, so far as he could ascertain them, were 532 British and 142 Indian permanent officers, together with 148 Indian temporary officers. In the last twelve months 14 British officers had been appointed to permanent commissions, with the option of retiring with gratuities after five years' service. He was not aware how many Indians had been appointed to temporary commissions during the last six months. A number of Indians, not exceeding ten, had been or were about to be appointed to permanent commissions.

R.A.M.C. Pensions.

General Sir Richard Luce, on March 24th, asked the Secretary for War if he was aware that an officer in the Royal Army Medical Corps had recently retired, after twenty years' service, with a pension of £328 per annum, and that this sum was £37 below the sum he understood he would receive after twenty years' service, when he joined the corps; and whether the Minister would take steps to secure that no officer who joined the corps before the warrant of 1919 came into force would in future be retired on a lower pension than he would have received under conditions existing when he joined the corps. Sir L. Worthington-Evans replied that the facts stated in the question resulted from the joint effect in this individual case of the rule that service on the West Coast of Africa counted double towards the twenty years required for voluntary retirement, and of the introduction in 1919 of a rank element into the calculation of retired pay.

General Sir Richard Luce, on the same date, also asked the Secretary for War whether a major, Royal Army Medical Corps, retiring after twenty years' service only received an increase by the 1919 warrant of £31 to his previous pension of £365, and that, by the reduction of 5½ per cent. on the increased pension of £396, he had had the increase reduced, not by 27½ per cent., but by nearly 67 per cent.; and if he would take steps to secure that these officers did not in future have their pensions reduced by a larger amount than 27½ per cent. of the increase granted in 1919. The Minister replied that the question was based on a misapprehension. The revision due to the fall in the cost of living which was made from July 1st last applied to the 1919 rate of pay itself, and not to the difference between the rates under the 1914 and 1919 warrants. A reduction of 5½ per cent. was therefore applied correctly to the 1919 warrant rate of £396 per annum in the instance quoted. A full explanation of the process had appeared in the press last December.

In a supplementary question, Dr. Fremantle asked whether the Minister realized that these and similar cases were responsible for the failure to recruit for the Army Medical Service. The Secretary for War said that a printed statement had been circulated to remove such apprehensions. Dr. Fremantle remarked that it was not a misapprehension, but a fact, that the Secretary for War was sailing close to the wind. The Speaker said that was a matter for argument.

Pensions.

Appeals.—Answering Colonel Acland-Troyte, on March 24th, Colonel Stanley, for the Minister of Pensions, said that in 8,000 cases appeals had been made against final awards of 20 per cent. and over, and in 104,000 cases against final awards of less than 20 per cent. In the former group of cases 35.1 per cent. of final awards were increased and 1.8 per cent. were reduced, and in 24.5 per cent. of the cases the tribunal decided that the case was not suitable for final award. Of awards of less than 20 per cent.,

4.8 per cent. were raised to pension rate, 23.2 per cent. slightly increased, and 0.1 per cent. lowered. The tribunal decided that 25.4 per cent. were not yet suitable for final award. Colonel Stanley could not agree that the compensation provided for cases of less than 20 per cent. was in principle unsatisfactory.

During the debate on the report stage of the Army Estimates, on March 23rd, the Secretary for War said he could not agree that the army medical sheets of ex-service men should be divulged save to the man's own medical adviser. The practice was to communicate it to the man's own medical adviser if the man chose to authorize the War Office to do this. He could not agree to give the sheet to a non-professional man, otherwise the man's own interests would suffer. Medical men must have assurance that these reports were confidential. If the medical officer of a trade union were acting for the man he could have the sheet.

Insurance Statistics.—The Minister of Health stated, in reply to a question on March 17th, that in 1923 the insured persons in England and Wales numbered 8,992,100 men and 4,325,800 women. Sickness and disablement benefits amounting to £7,677,500 were paid to the men, and similar benefits amounting to £3,855,900 to the women, making £11,533,400 in all. Statistics were not compiled to show the number of cases assisted in a year, or the total number of weeks of sickness. In 1914 £4,140,000 was paid under the National Health Insurance Act to doctors for medical service, £1,051,000 for medical supplies (medicines, etc.), and £1,077,000 for maternity benefit. In 1923 the payments were: medical service £6,681,000, medical supplies £1,509,000 maternity benefit £1,526,000.

Insurance.—Mr. Read, on March 19th, suggested that persons who under the present arrangements are not entitled, after a period of residence abroad for more than one year, to claim any sick benefit until the intervening contributions have been paid, or a further 104 contributions paid, might be allowed the benefit of the contributions made by them to the time of leaving the country. Mr. Neville Chamberlain saw great difficulty in this suggestion, but promised to send it to the Royal Commission on National Health Insurance for consideration. Provisional regulations, dated March 19th, 1925, made by the National Health Insurance Joint Committee, entitled the National Health Insurance Approved Societies' Amendment Regulations, 1925, have been laid on the table of the House of Commons.

Poor Law Relief.—Mr. Neville Chamberlain stated, on March 19th, that the Government does not intend to bring in legislation this session to amend the law of Poor Law relief. The total expenditure for relief of the poor and for associated purposes in England and Wales during 1924 was £38,000,000, being a reduction of £3,934,000 from 1923. Of the 1924 total, £1,185,000 was for administrative charges.

The Dismissal of a Medical Officer.—Major Hore-Belisha asked the Minister of Health, on March 18th, whether his department had received from the Plymouth Town Council a report of the proceedings culminating in the dismissal of Dr. Bushnell; whether he had approved this dismissal; and, if so, whether he would give the doctor an opportunity of having the charges against him specified in order that he might refute them. Sir Kingsley Wood replied that the Minister had not received such a report. The Minister was not required to approve the determination by the town council of its contract with Dr. Bushnell, and the question of giving him an opportunity of having the charges specified did not therefore arise. It was not the fact that before a borough council could appoint a medical officer it had to obtain the approval of the Ministry of Health. Major Hore-Belisha asked whether it was not a grave injustice that a medical man could be dismissed without any proper charge being made against him and without his having the opportunity of answering any complaints. Sir Kingsley Wood answered that on the question of injustice he could give no opinion.

Chemical Warfare.—Answering Mr. Ammon, on March 20th, Sir L. Worthington-Evans, Secretary for War, said that in addition to 22 naval, military, and Air Force officers, and 26 civilian scientists, 82 soldiers and 92 civilians were employed at the Chemical Warfare Establishment, Porton, on research and experiment relating to defence against gas and the treatment of gas casualties. For protection against gas it was essential to investigate new gases and other forms of chemical warfare which might be used against this country. In 1924 the 1,001 live animals used for experimental purposes at Porton included 3 goats, 4 monkeys, 68 cats, 445 rabbits, 251 guinea-pigs, 166 rats, and 64 mice. Of these, 337 were killed as the result of the experiments, and the rest were destroyed; it was the rule to destroy animals after they had been used for this purpose.

Deaths of Seamen.—Answering Dr. Shiels, on March 19th, Sir Burton Chadwick, Parliamentary Secretary, Board of Trade, said that in the mercantile marine in 1922 the crude death rates per 10,000 from pneumonia were 2.4 among British seamen, 4.3 among foreign seamen, and 7.6 among lascars; from phthisis they were 2.0 among British seamen, 1.3 among foreign seamen, and 5.6 among lascars. From all other diseases the death rates per 10,000 in 1922 were: British seamen 18.4, foreign seamen 25.1, and lascars 27.3; and from accidents and injuries: British 32.8, foreign 36.3, and lascars 37.8. In 1920 the death rates of the lascars were: from pneumonia 12.1, phthisis 6.2, other diseases 43.6, accidents and injuries 12.9.

Foot-and-Mouth Disease.—In replies to questions on March 23rd, the Minister of Agriculture, Mr. Wood, said that fifteen cases of foot-and-mouth disease had been confirmed since January 1st, and 1,212 animals had been slaughtered. It was not proposed to build a new experimental station to test Dr. John Shaw's remedy for foot-and-mouth disease. The premises at Pirbright to be used for the purpose were formerly used by the Ministry as a cattle testing station and were being adapted for use by the Scientific Committee on Foot-and-Mouth Disease. It was not legally possible for Dr. Shaw to carry out the test without a licence from the Home Secretary under the Cruelty to Animals Act, 1876, which the Minister was advised Dr. Shaw did not hold. But he would be invited to be present during experiments by officers of the Ministry's veterinary staff.

Imported Medical Appliances.—A statement issued by the Board of Trade as to the value of scientific instruments and appliances imported into the United Kingdom shows that in 1924 the value of dental, surgical, medical, and veterinary instruments, except optical, imported was £47,510; that of appliances, including trusses and artificial limbs, £17,089; and that of aseptic hospital furniture £16,357. In 1922 the respective values were £26,675, £9,514, and £9,674. The value of imported lenses, prisms, etc., including those imported with complete instruments, in 1924 was £224,886.

Smoke Abatement.—In answering questions, on March 19th, about smoke abatement, Mr. Neville Chamberlain said the estimate that 66 per cent. of the smoke pollution came from industrial chimneys was too high. He thought that the greatest contributor to smoke pollution was the domestic fire. He hoped to introduce a bill on the subject next session.

Notes in Brief.

In 1924 the estimated consumption of sugar in Great Britain and Northern Ireland was 2,549,000 cwt. refined and 42,618,000 cwt. unrefined; of tea, 3,540,287 cwt.; and of coffee 320,596 cwt. For meat the latest figures are for the year ended May, 1923, when 2,524,000 tons were consumed, including 954,000 home-grown. Figures of the home consumption of milk, bread, butter, and margarine are not available.

The Government does not contemplate legislation to enforce the provision of lavatories on railway trains.

Of 28,742 men rejected from the army at the primary medical examination last year, 1,743 were rejected for defective vision and 2,062 for defective teeth.

The War Office states that there is no medical objection to a battalion going under canvas for the month of April at Aldershot.

Satisfactory progress is being made in drafting the Government's Poor Law Reform Bill, which will be circulated for the opinions of local authorities.

Persons making a return for super-tax number, according to the latest statistics, 87,704.

The Home Secretary does not propose to proceed with the Factories Bill in the House of Commons for some weeks, and in the meantime will receive deputations from trades which would be affected by it. The text of the bill introduced last year by Mr. Arthur Henderson is not to be adopted as a whole by the Government.

Correspondence.

VERONAL POISONING.

SIR,—As surmised in an annotation in the BRITISH MEDICAL JOURNAL of March 21st (p. 570), it is likely that death from veronal poisoning is more common than statistics indicate. May I suggest a probable cause for the mortality, and a possible remedy? We have four salient facts—at least, judging from my own experience, they seem facts to me. (1) The drug is so potent that, given properly and in ordinary insomnia, it is rarely necessary to prescribe more than 5 grains, and usually 2½ grains is sufficient. (2) There is no clear evidence of habituation; its victims merely desire drowsiness, not other sensations as well (as in the case of alcohol, opium, and cocaine); given natural sleep it is not desired; no more, and no less, than procures sleep is desired; as time passes there is no augmented craving, and the same dose continues to produce the same effect. (3) The action is delayed—four, five, or six hours. (4) Apart from deliberate suicide, in every case of death the victim has tried to procure *immediate* sleep.

The case of a London clubman is instructive and typical. During an attack of insomnia he took 10 grains at bed-time, which in his case was late. He was wakeful that night, but "deadly drowsy" next day, a circumstance which he attributed to lack of sleep. The following night he took 15 grains. Again he was wakeful; but in the afternoon slumbered so profoundly at his club that the attendants had difficulty in rousing him. Manifestly heavy and stupid

he went home, and subsequently had difficulty in clearing himself from a charge of drunkenness before the club committee. "Veronal is no good; it has not the smallest effect on me," he declared. On a later occasion, when ignorant of the remedy applied, he was given 5 grains in the early evening. He described himself as getting "a heavenly night," but as being too sleepy in the morning. Thereupon he was given 2½ grains, also in the evening. Now he had "perfectly natural sleep" with no apparent drowsiness till he went to bed, and none after he rose. He was then told the facts and informed that the fit of insomnia was probably broken, which proved to be the case. He still takes veronal, but rarely, and never in more than 2½-grain doses. I could quote many similar instances. But doubtless individuals vary.

It seems evident that, apart from deliberate suicide, excessive doses are taken only because the victim, ignorant of the delayed action, makes more and more strenuous efforts to procure *immediate* sleep. I suggest that patients shall always be informed of the delay, and that a label shall be affixed to every packet affirming the uselessness of veronal as a quick remedy for wakefulness.—I am, etc.,

Southsea, March 23rd. G. ARCHDALL REID.

THE IMMEDIATE AND REMOTE EFFECTS OF SUNLIGHT ON THE EPIDERMIS.

SIR,—Although the matter in this letter may be considered by some to be more academic than practical, yet it raises some points of great interest. Here are my facts. I have recently microscopically examined skin that had been "bronzed" by therapeutical exposure to sunlight. There was very marked mitosis occurring in the epithelial cells situated above the basal layer. Dr. Arthur Whitfield has examined skin after I had applied to it, preparatory to operation, a solution of 1 in 20 carbolic acid, and he found the same mitotic changes. Ten years before any particular reference had been made to the matter, I published in the BRITISH MEDICAL JOURNAL (June 12th, 1909) coloured plates reproducing the backs of the hands of an old countrywoman. The plates show that the skin covering the backs of the second metacarpals had undergone atrophy, pigmentation, loss of pigment, and had lost its elasticity. Although I attributed the state of the skin to "biotripsis," or life wear, there can be no doubt that it was due mainly to the sunlight factor of life wear. I stated also that precisely the same changes exist on the same parts of the hands in white people who have spent their lives in tropical countries; that this situation of this particular kind of biotripsis is the commonest site for squamous epithelioma to begin on the hands; and that gardeners very frequently are subjects for squamous epithelioma on this part of the hands. Dr. G. M. Findlay, at the Pathological Section of the Royal Society of Medicine (February 17th, 1925), showed that artificial ultra-violet rays hasten the advent of carcinoma on the skin of mice that has been painted by tar. Also that once tar carcinoma has been induced, its growth is stimulated by the application of ultra-violet rays.

These facts seem to me to necessitate care and judgement in the application of sunlight and ultra-violet rays to parts already suffering from results of at least this form of irritation. I am more impressed by the necessity of care in the application of ultra-violet rays by recently having seen a lesion that had been exposed to ultra-violet rays as a speculative therapeutical procedure. The lesion was getting worse in a very remarkable manner.—I am, etc.,

London, W.1, March 23rd. G. LENTHAL CHEATLE.

THE LIBERTIES OF THE PROFESSION.

SIR,—I trust that the astounding action of the Ministry of Health in disregarding the verdict of the impartial tribunal appointed by itself, and in imposing a penalty on one of our fellow practitioners declared by that tribunal to be innocent of the offence charged against him, will not be met by us with our usual indifference. If we stand this we shall stand anything. We have been subjected to an affront and an injustice which no body of organized workmen in the country would tolerate for a minute. Quite apart from the disregard of the considered verdict of the tribunal, it is nothing short of an outrage that the officials of a Government department should be able with impunity to impose financial penalties for what even they can only describe as an error of judgement. Surely it is the General Medical Council, through its regulation of qualifying examinations, that alone is entitled to determine what shall be the measure of ability and knowledge entitling a man to practise medicine in this country. Negligence and malpractice are another matter, and may rightly be confronted with the penalties of the lay authorities; but in this case there was no question of negligence or of malpractice. It is obvious to me, and, I should imagine, to almost every medical man, that we are here faced with a direct and singularly provocative attack on our fundamental liberties. I sincerely trust that preparations are in hand for an organized and effective protest.—I am, etc.,

London, E.1, March 22nd. HARRY ROBERTS.

*** The Ministry of Health has not responded to the invitation extended in the annotation published in the JOURNAL last week (p. 566) to send us any explanations it might wish to offer of its action in the case reported in the SUPPLEMENT last week (p. 122). The subject was brought to the notice of the Council of the British Medical Association at its meeting this week, but too late for us to publish a report of its decision. We understand, however, that the Royal Commission now sitting will be asked to consider the position. In an interview published in the *Times* last week (March 19th), Dr. Cox, Medical Secretary of the Association, said that the matter was important and that the Association intended to take it up with the Ministry. He added that though, on the whole, the profession was satisfied with the judicial machinery of the insurance scheme, there had been some cases in which the penalties were unnecessarily severe, and one or two in which, although the Committee of Inquiry had recommended that there should not be a penalty, the Minister had imposed one.

CAUSATION OF CANCER.

SIR,—In your issue of March 7th (p. 483) Dr. Ernest Neve, in referring to "kangri-burn cancer," upon which he is such a high authority, suggests that it affords convincing proof of the "irritation" theory of cancer, and adduces the irritation of blocked ducts and acini as an alleged factor in the production of cancer of the breast in further support of this theory.

I am not familiar with these conditions in the breast as precursors of cancer, nor indeed do I attach much importance anywhere to mechanical irritation in the etiology of malignant disease, for there are many obvious examples of the most persistent and prolonged mechanical irritation which never induce cancer; as, for instance, the pressure of artificial limbs, trusses, spectacles, boots, crutches, and so on.

But everyone must have been impressed by the recent work on the experimental production of cancer by chemical agents—tar, soot, oil, etc.—and I wonder whether Dr. Neve has considered the possibility of a chemical origin for kangri-burn cancer. This disease furnishes an exceptionally well defined silhouette in the natural history of cancer; indeed, so definite are the conditions of its production and so constant the results that it is almost equivalent to an experimental laboratory cancer, and yet at first sight how different is the agent that produces it! Is it not possible that the constant baking to which the tissues are subjected results in the production of some chemical agent comparable in its effects with the soot, tar, oil, etc., now so firmly established as the causes of their specific cancers?

I do not suggest for a moment that the problematical agent produced by heating the tissues is *the* cause of "kangri cancer," because I do not believe that any of the substances so brilliantly investigated by Leitch and others is the immediate sole cause of the kind of cancer with which it is associated; but they certainly do act as excitors of cancer, and no doubt they pull the trigger, possibly by playing much the same part as the catalyst which is so all-important in many chemical processes.—I am, etc.,

London, W.1, March 16th. CECIL ROWNTREE.

THE CORONER'S COURT.

SIR,—I presume the coroner's court is an institution in which the medical profession takes an interest. It is one of the oldest institutions in this country. It existed long before police and modern police magistrates, and had in its earlier days a very definite function in criminal administration. In present-day criminal administration it has no proper place. For to-day the initiative is with the police; when it has finished the police court must go over the same ground and bring its verdict entirely independent of the coroner's court verdict. The coroner's court may convict or acquit, but the magistrates' court is in no way bound by that verdict. Hence it has no place—is supernumerary—in the organization for criminal investigation. It thus serves no purpose at present. It costs the taxpayer a considerable amount. It causes considerable inconvenience unnecessarily to all concerned, and should be abolished. I think the police department would even go so far as to say that it often causes them to "show their hand" prematurely, to the disadvantage of criminal investigation.

There is no need felt for a coroner's court in countries where it does not exist. In such countries, when the police have reason to suspect foul play they call on a medical officer to make a *post-mortem* examination, the body being recognized by one or more persons in the presence of that officer, and such identification entered in the record. If poison is suspected, the necessary parts are sealed up by him and sent to the chemical-toxicological examiner to the government. The report, or a copy of it, is made over to the police, who in due course bring the case before the magistrates' court, who dispose of it, as our magistrates now do. By this procedure the police have not to "show their hand" prematurely, which is often a great advantage over the coroner's court proceedings. It serves all the ends of criminal administration without duplication or unnecessary inconvenience to any of the parties concerned. The coroner's court could be scrapped without loss and with the saving of the large amount of the taxpayers' money which it now costs.—I am, etc.,

HENRY SMITH, C.I.E.,
Lieut.-Colonel I.M.S.

Sidcup, Feb. 23rd.

*** A note upon the bill the Home Secretary, at the end of last year, promised to introduce will be found at page 619.

TREATMENT OF DIABETES BY RAW FRESH GLAND (PANCREAS).

SIR,—I was very interested in Dr. Hollins's article in the BRITISH MEDICAL JOURNAL of March 21st (p. 503), and can fully endorse his statements. Exactly thirty years ago (1895) I became interested in this subject, and wrote a thesis on it for the degree of M.D.Glasg. entitled "The pancreatic treatment of diabetes mellitus" by the raw fresh gland, in which I stated the results of some half-dozen cases. The success which in those early days attended the administration of thyroid gland in myxoedema suggested the trial of pancreas gland in diabetes, and, strange to relate, my method of administration was exactly identical with that adopted by Dr. Hollins, even to the mincing of the gland and mixing it with lettuce. I prescribed half a gland of sheep's pancreas daily without any untoward symptom arising, or any disinclination to take it on the part of the patient.

From the beginning I was very gratified with the rapidity with which the sugar disappeared from the urine as well as the diminution of thirst and polyuria. In addition, there was an increase in weight and a general feeling of well-being as long as the treatment was continued regularly, but a tendency to relapse on its cessation. Neither did I find it necessary to enforce too strict a diabetic diet in my cases, nor to prescribe for a time absolute rest. I have had no occasion to use insulin.

In conclusion, I would suggest a trial in the fresh raw state of any of the endocrine glands in disease in preference to the compressed form.—I am, etc.,

R. ROBERTSON YOUNG, M.D.

Leicester, March 20th.

MASSIVE PULMONARY COLLAPSE.

SIR,—In his paper on "Massive pulmonary collapse," published in the BRITISH MEDICAL JOURNAL of March 21st (p. 544), Dr. Bertram Soltau refers to instances of tachypnoea following encephalitis lethargica, and inquires whether observation has been made in such cases as to the condition of the diaphragm.

There are several references in the literature upon this point: Laignel-Lavastine and Maingot have recorded an asynchrony between the two halves of the diaphragm during respiration. Vincent and Bernard (*Bull. et Mem. Soc. des Hôp. de Paris*, 1922, 46, 1111 and 1181) have drawn attention to a fixity of the lower half of the chest in the position of full inspiration, with an associated immobility of the diaphragm, which they attribute either to paralysis or a state of spasm.

In a paper in the forthcoming number of *Brain* we have reviewed the whole subject of respiratory disorders occurring in epidemic encephalitis, at the same time reporting six fresh cases. In two of these, radioscopic examination of the diaphragm reveals some slight abnormality taking the form of a jerky or broken character to the expiratory component. This was reflected in the breathing as a cog-wheel expiratory effort. In a third case a similar type of respiration was encountered, but here no confirmatory *x*-ray examination was made.—We are, etc.,

W. ALDREN TURNER.
MACDONALD CRITCHLEY.

National Hospital for the Paralysed and Epileptic, W.C., March 23rd.

THE TREATMENT OF PNEUMOCOCCAL EMPYEMA.

SIR,—I have read with much interest Professor G. E. Gask's article on exploratory thoracotomy (BRITISH MEDICAL JOURNAL, February 21st, p. 343), and with great pleasure your leading article on chest surgery, especially in its reference to the treatment of empyema and its dissatisfaction with the old and well tried method of incision and drainage. But in discussing this subject we must distinguish between the treatment of a pure pneumococcal infection, that of a mixed infection, and that of a pure staphylococcal or streptococcal infection. Drainage must always be carried out, in one form or another, in any case that is not purely pneumococcal. I will therefore confine my remarks to cases of pure pneumococcal infection following pneumonia, and these are the cases we most commonly have to deal with.

As I have stated elsewhere (BRITISH MEDICAL JOURNAL, 1920 and 1923), in pneumococcal empyemata the mere evacuation of pus out of the pleural cavity is not the sole aim of treatment; far more important is the restoration of function of the compressed and collapsed lung. We have to deal with a rigid thorax—a collapsed lung, often in old-standing cases covered on its visceral pleura with plastic lymph, and frequently adhesions to the parietal pleura—as well as a cavity full of pus and fibrinous masses of lymph. Therefore our aim must be to get the lung into as favourable a condition as possible to promote re-expansion. In securing this ideal there are two fundamental principles:

1. To make a sufficiently large opening into the pleural cavity, not only to palpate, but also to inspect the lung. The opening must be large enough to allow the whole hand to enter the pleural cavity in order to clear out all fibrinous clots, to separate adhesions (if feasible), and to free the lung from all plastic lymph; and also, if necessary, in old-standing cases, to decorticate the lung. Having thus promoted re-expansion of the lung, the pleural cavity should be well irrigated with an antiseptic fluid. I now use 1 in 40,000 mercury perchloride solution, because the pneumococcus is killed by 1 in 20,000 solution in two hours (Choyce's *Surgery*, vol. i, p. 68). I have never had any danger arise, either from free washing out of the pleural cavity or from use of this mercurial solution, some of which is left in the pleural cavity.

2. To use some method which abolishes a "sucking wound." The atmospheric pressure is greater than intralobar or intralobular pressure; therefore an open sucking wound must hinder the re-expansion of the lung. Many procedures have been advocated. The drainage of the

pleural cavity into an antiseptic fluid is commonly practised, and a most ingenious method is that of Otto Pickhart (*Archives of Surgery*, January, 1924). There are also the various methods of negative pressure, such as the Morelli method of replacement of pus by air.

I still adhere to the method of immediate closure followed by daily evacuation of the pleural contents with an exploring syringe. I have had some cases in which healing took place by first intention, but I have also had failures. These have been cases with much adhesion of lung to diaphragm or parietal pleura, in which I could not, without severe haemorrhage, free the lung as fully as I wished. If this method does not succeed no harm is done, because, if the daily count of organisms does not rapidly fall, or if fluid reaccumulates, it is easy to remove a few stitches and use some form of drainage.

The suction method of Poynton and Reynolds is very serviceable in infants who cannot stand rib resection, but as it does not allow of evacuation of fibrinous masses it is often a failure, and an open operation has sometimes to be performed subsequently.

No matter what method of treatment is adopted we all have failures. Cases refuse to heal, and a permanent sinus is left. These cases are due to adhesions not allowing the lung to re-expand. How are we to deal with these cases? Estlander's operation is a mutilating procedure, and can be superseded by Emil G. Beck's open method of intrathoracic surgery (*Archives of Surgery*, January, 1924). This is a skin sliding operation—that is, the taking of skin flaps from the chest wall and fixing them into the cavity and making the cavity outside the body.

My procedure now is that if a persistent sinus is left I inject into it bismuth solution and *x* ray the chest. If the cavity is small, I resect a rib over the cavity, pack it, and allow it to heal by granulation. If, however, the cavity is large, I lay it freely open by resection of the ribs overlying, cleanse the cavity, take skin flaps from the chest wall and slide them into the cavity, and fix them there by sutures. The cavity very soon heals, becomes skin-lined, and is easily kept clean. Although the lung which is collapsed never freely re-expands, the other lung takes up its function and the sinus is cured.—I am, etc.,

Windsor, February 23rd. FRANK J. HATHAWAY.

RECENT ADVANCES IN THE STUDY OF CARDIO-VASCULAR DISEASE.

SIR,—The lecture by Professor MacIlwaine of Belfast, published in the JOURNAL on February 7th (p. 249), leads me to remark that *advances* in the study of cardio-vascular disease have indeed been prominent during the last quarter of a century, if we are justified in so describing all the newer methods of investigation and their results which have made their appearance within this period. So extensive have been these departures that they have necessitated a new nomenclature to cover and label the results; incidentally, this unfamiliar terminology has served to mark the gulf which separates the cardiology of the past from that of the present. But whilst advances inevitably imply changes, changes do not always signify advances. It is with this doubt in mind that I have ventured to italicize the word "advances," for advance means change for the better.

Up to the early years of this century cardiology had gone on very quietly; some will think too quietly, and that it had become a trifle stagnant. Sir James Mackenzie thought so, and, to his honour, had been observing, recording, and pondering for many years in search of new lines of approach towards the solution of problems admittedly very complex. In 1908 his first edition of *Diseases of the Heart* was published and at once made its mark; this event is justly described by Dr. MacIlwaine as follows: "Then came the epoch of Mackenzie's work, which dominated all clinical pathology"—it did; there was thenceforth an end to complacency and contentment with past achievement. The basis of Mackenzie's work was the study of the individual cardiac cycle, and the new line of approach was by way of the systemic veins and their pulsations at the root of the neck; the instrument for recording these pulsations was the polygraph, which simultaneously gave records of the arterial pulse. The feature then in this new departure was the investigation of the tracings so obtained. I would quote a notable passage from the preface to the first edition of *Diseases of the Heart*; Mackenzie says:

> "The *interpretation* of these records may prove to be faulty, and an endeavour has therefore been made to keep the actual observation separate from the interpretation, so that, if the latter be erroneous, the recorded movements may at least remain available for future workers in this field."

Here speaks the true spirit of the scientific explorer, for it shows that the author was fully alive to the dangers which attend upon all instrumental investigation. The italics of the word "interpretation" are mine.

In my opinion there has been too little thought and criticism bestowed, both upon the instrument and the interpretation of its records. I have endeavoured to set forth the argument in full in a chapter of *The Heart as a Power-Chamber*, 1922, also in two supplementary papers in the BRITISH MEDICAL JOURNAL of April 14th, 1923, and of November 8th, 1924, respectively; the following are some selected salient points:

1. In respect of the adequacy of the *instrument* itself this primary objection arises—namely, that it has no access to the left heart, the pulsations which it records being of those veins only which are tributary to the right auricle; whereas the pulsations occurring in the veins feeding the left auricle are buried in the depths of the lungs and never come near the surface of the body. But the left heart is not only the site of the most powerful cardiac activities; it is also the preponderating site of the incidence of disease, neither of which, therefore, can in their effects appear in the polygraphic tracing. Thus in the case of mitral stenosis, with marked auricular hypertrophy, proceeding in the course of things to auricular asystole (fibrillation), the tracing can show neither the marked accentuation of the *a* wave (accepting the theory of its production), nor the disappearance of the accentuated wave when asystole sets in.

2. In respect of the delicacy of the instrument and its fitness to transcribe faithfully the venous undulations, the instrumental error, introduced by the inertia of the lever-pen and multiplied, as it must be, by the inertia of the liquid waves—that is, their tendency to persist and interfere more or less with antecedent and succeeding waves—raises the question of the faithfulness of the transcript as a record of the *events* causing the undulations. In respect of the analysis of the waves, it is suggested that an instrument working at greater speed would be advantageous by spacing out the individual waves.

3. In respect of the interpretation of the different waves in terms of their mode of production, so as to justify the nomenclature adopted, let us first consider the *a* wave, so called, and note that the effect of the *sphincter action* at the mouths of the cavae, which the circular muscular fibres there placed must exert (seeing that these fibres are part and parcel of the auricular musculature), has been wholly ignored; yet it must interfere more or less with the backward propagation of an auriculo-systolic wave, perhaps even to its complete cancelling. On anatomical and physiological grounds alike this neglect is unjustifiable.

4. Let us next take the *v* wave, the termination of which has been described as marking "one of the most certain periods in the cardiac cycle." This is the wave which has been styled a wave of stasis because its ascent is determined by the pressure rise in the auricle under the *vis a tergo* in the veins as the blood accumulates behind the closed auriculo-ventricular valve *during the entire period of the ventricular systole*—that is, three-tenths of a second. Now comes the ventricular diastole, which releases the auriculo-ventricular valve, and this, which is a sudden event, is held to be responsible for the abrupt descent of the pressure line. This theory brings in two factors as productive of the *v* wave, the one gradual, the other sudden; but, if this be the case, the line of ascent must be *gradual* and the descent *sudden*. Is this the character of the *v* wave of the tracings? No; the *v* wave is, in type, just like the other waves. Further, physiology contradicts this mode of genesis by showing that in typical intracardiac pressure curves there is commonly no appreciable pressure fall at the end of ventricular systole.

Space forbids the further pursuit of this subject, but it

is hoped that sufficient has been said to justify the appeal which I would make to my colleagues in general, but especially to those that teach and those that are engaged in laying the foundations of their medical knowledge, that they should look into this, each for himself, with an open mind, and seriously, seeing that so much is involved.—I am, etc.,

London, W.1, Feb. 18th. HARRINGTON SAINSBURY.

THE READING OF SKIAGRAMS.

SIR,—Most atlas-making for clinical comparison of the normal and abnormal must be largely futile unless the axial focal distance of the radiographic centre of emission from the plane of the plate, film, or screen be directed through the same anatomical points, and unless the distance be proportional to some well marked and constant dimension of the parts depicted, which parts (while of the same shape externally) may yet vary greatly in actual size.

Thus, in comparing a normal chest 30 inches in circumference with a suspected one 45 inches in circumference—provided always there is no gross deformity of the bony thorax to be felt externally—the normal distance of the centre of emission might be in such cases three or four times the antero-posterior thickness of the smaller and larger chest respectively, at the same level of the chest in the middle line. Otherwise we might get a dissimilarity of the outlines of the internal organs not due to real anatomical disproportion of the organs, but entirely due to dissimilarity or "distortion" of the perspective employed.

Again, as is done systematically with all lantern slides for his guidance before handing them to the lantern operator (and especially in these latter days of double-coated films), all *x*-ray plates and films should be automatically "spotted" by the *x* rays themselves at the time of exposure, so that subsequent observers may all know which side of the film, direct or reverse, they are looking at. After all, the shadow on the window blind viewed from the street is not a view through the window pane into the locked room! What is wanted is a glimpse through the keyhole.

According to the rules of ordinary perspective, what may be called the fluorescent screen side of the *x*-ray picture plane is the false or reverse side thereof, and dependence on the screen finding alone must lead to all sorts of false visual judgements as to direction, position, and size of the hidden parts depicted. In systematic clinical radiography of large parts of the body, except perhaps in such a recognizable momentary condition as of gas bubbling to the horizontal surface of the fluid in a wounded thorax, it is safest in most cases to regard the fluorescent screen as a large but reverse erect view-finder.

I hope to demonstrate lantern slides of these and other perspective considerations at the forthcoming International Congress of Radiology, which may perhaps take quite an intelligent interest in the application of perspective principles to *x*-ray interpretation.—I am, etc.,

W. COTTON, M.D.,
Late Captain R.A.M.C.(T.F.) in charge *X* Rays, No. 20 General Hospital, B.E.F.

Bristol, March 19th.

THE TREATMENT OF INFANTILE PARALYSIS.

SIR,—Mr. Hey Groves's address (JOURNAL, March 14th, p. 492) invites critical comment by its definite statements and by the vigour of its arguments. He makes two very strong pleas for special consideration in the treatment of this disease—first, the need for careful, painstaking, and prolonged management of the early stages, and secondly, the consequent necessity for more hospital accommodation. These are without question the two most important problems in the treatment of this exceptionally difficult disease waiting to be solved at the present time.

My personal criticism of the address concerns, first, a comparatively minor point regarding rest for the arms in the early stages; and secondly, the important question of due recognition being given to the pioneer of modern methods of treatment in the early stages.

Mr. Groves states: "The arms must be abducted at the shoulders, the forearms pronated, and the elbows flexed." My experience has been that the tendency to pronation of the forearm is one which has often to be resisted. My practice is to rest the arm on a MacKenzie abduction arm splint, with the forearm and hand supported in a midway position between pronation and supination.

In his account of treatment in the early stages Mr. Hey Groves quotes only one authority for his description of the recommended treatment at this most important period—the late Professor Lovett of Boston (America). He makes the definite statement that "The one potent active remedial agent is muscle re-education." With this statement I am in complete agreement. But why does he not give credit for the introduction of this remedial measure where credit is due? Why is it necessary to quote Lovett as an authority on muscle re-education in this disease, and to refer also to the minimum load for a muscle or muscular movement as if it were part of Lovett's teaching? So far as I am aware, Lovett never mentioned the phrase "muscle re-education" in any of his published writings on infantile paralysis, nor did he ever make any reference to the term "minimal load."

More than ten years ago—to be exact, on January 9th, 1915—Dr. William MacKenzie published an article in the BRITISH MEDICAL JOURNAL on the "Treatment of infantile paralysis: a study in biology," giving a full and detailed account of his methods of re-education of the "paralysed" muscle.

The term "minimal load" for the work of a muscle was first used, I think, by Professor Sir Arthur Keith in a lecture at the Royal College of Surgeons in 1917 on the orthopaedic principles of John Hunter. In this he referred to the practical application in treatment by his friend Dr. MacKenzie of many of Hunter's facts. Why, therefore, should Mr. Hey Groves give the credit for the introduction of a specialized form of treatment to an American author when a much more substantial claim can be made out for one of British birth, whose contributions on the subject are available in the same medical journal as that in which publication is proposed?

In *The Principles and Practice of Medicine*, by Osler and McCrae (ninth edition, revised, published in New York and London, 1920), under the heading "Acute poliomyelitis—treatment," this particular article by MacKenzie in the BRITISH MEDICAL JOURNAL of 1915 is specifically mentioned, and is quoted from at length. No other name or method of treatment is mentioned. In justice to myself I may mention my own article in the BRITISH MEDICAL JOURNAL of October 2nd, 1920, on "The place of muscle re-education in the treatment of infantile paralysis," which has apparently also escaped notice.

In conclusion, I beg to state that I am in complete accord with Mr. Hey Groves when he says, "It is very doubtful whether massage or electrical treatment has any value"; also, if early treatment is successful, then, "when the extent and distribution of the paralysis have become fixed and definite, we ought to have no contractures or deformities requiring correction."—I am, etc.,

London, W.1, March 16th. CHARLES MACKAY.

NERVOUS EXHAUSTION AND LOW BLOOD PRESSURE.

SIR,—Physicians who possess special facilities for studying the phases and fluctuations of arterial pressure, as well as those who are more directly concerned with the psychoneuroses, are familiar with the fact that the majority of cases of "nervous exhaustion" exhibit low arterial pressures, and can thus substantiate the independent observation of Dr. D. W. Samways (March 7th, p. 482).

Owing to incomplete knowledge of etiology, in the past the term "neurasthenia" has been loosely used as a dumping-ground for many functional nervous derangements. For the present it would seem better to regard neurasthenia as the expression of states of nervous exhaustion of constitutional or acquired origin. The height of the arterial pressure affords a useful means of differential diagnosis between neurasthenia, in which the pressure is uniformly low, conversion hysterias, in which the arterial pressure is usually normal, and anxiety states, in which the pressure is often considerably raised.

In respect of treatment, my experience is that constitutional neurasthenia admits only of alleviation, and that the arterial and pulse pressures are almost or entirely unchanged. The acquired form is induced by certain toxaemias, either primary—of which the intestine constitutes the chief source—or secondary to acute infections or endocrine deficiencies. From the biochemical standpoint such are frequently correlated with diminution in calcium metabolism. Improvement under treatment is usually found to go hand in hand with a return to standard sphygmomanometric readings. Notable lowering of systolic, diastolic, and pulse pressures in the majority of cases coincides with distinct mental depression.

Chronic and profound prostration leads to depletion of pressor substances, and probably many forms of hypopiesis are due to the formation of fatigue products in muscle and gland tissues. It is certain that adrenal inadequacy forms a definite factor in cases in which somasthenia and profound prostration constitute the dominant clinical features of neurasthenia.

It is, perhaps, not yet sufficiently realized that true hypofunction of the adrenals may occur, apart from organic disease of these glands, in response to excessive and prolonged mental and physical strain. In some women, especially at the climacteric, there is undue lability of the autonomic nervous system, mainly affecting the vasomotor nerves, and to the adrenal hypofunction is added ovarian deficiency. In promoting recovery, administration of combined adrenal and ovarian extracts is helpful.

In the low arterial pressure which coexists with gastro-intestinal atony the splanchnic area is involved, and such patients derive considerable benefit from a properly fitting abdominal belt and parathyroid medication. As regards adrenal hypofunction, apart from Addison's disease, atropine is at times of service, whilst at other times a patient will be found in whom the exhibition of adrenal extract has no effect. Such subjects usually react well to strychnine.

In my view Dr. Samways is correct in attributing the lowered tone of the arteries, and consequently the reduction of arterial pressure, to exhaustion, which is induced, so far as our present knowledge extends, by the agencies which I have endeavoured to indicate. Further light on the problems of toxaemia in general and on the exact nature of the bodies absorbed from intestine and other foci is, however, greatly needed.

In estimating whether a given arterial pressure is low or not, Dr. Samways's single reading of "125 mm. Hg or less" is open to criticism in that it presents only a part of the whole circulatory picture. As I have pointed out during many years past in this JOURNAL[1] and elsewhere, a single set of figures representing solely the systolic pressure, particularly when considered apart from age and body weight, both of which have important influences, is misleading, because it forms only a portion of "the complete arterial pressure picture" requisite for determination of the circulatory efficiency at the time of estimation. The complete picture is obtained by a simultaneous record of (1) systolic pressure, (2) diastolic pressure, (3) pulse pressure, (4) pulse rate, and (5) pulse pressure × pulse rate product. Such figures take only a minute to enter in the case notes, and afford information of permanent value.—I am, etc.,

London, W.1, March 16th. J. F. HALLS DALLY.

RESPIRATORY ORTHOPAEDICS.

SIR,—Mr. F. Pearce Sturm has rendered a great service in drawing attention, in his letter (March 7th, p. 483) headed "Respiratory orthopaedics," to the necessity of following up all tonsil and adenoid cases in children by a course of respiratory exercises. The question is one that interests orthopaedic specialists very greatly. In an ordinary orthopaedic out-patient department they see a considerable number of children, who are brought by their parents (very often at the instance of a school medical officer), because they are round-shouldered, chronically tired, and flat-chested; in some cases there is early scoliosis as well. These children are invariably weedy, anaemic, and obviously debilitated, and in a majority of cases they are habitual mouth-breathers and show the typical open mouth, "adenoid facies," and other stigmata of that condition.

In such cases, the obvious indication is to deal with the fundamental cause—namely, the respiratory obstruction; but it is not enough merely to send the patient to the throat specialist to have the tonsils and adenoids removed. Indeed, in some cases, this operation is unnecessary, and a course of respiratory exercises may cause the disappearance of the obstruction. It is the habit of mouth-breathing that needs correction, and the mere removal of the source of the obstruction is but an incident in the process. The operation itself is not curative. All that it does is to provide an airway through which the patient can breathe if he will. Usually he does not will, and a course of respiratory orthopaedics is necessary to teach him to do this, and the exercises must be continued until the habit of mouth-breathing has been completely corrected. Whether it is the business of the laryngologist or of the orthopaedist to prescribe these exercises is but a detail; the point is that they are indispensable, and should be employed in every case. I would even go so far as to say that in some cases the removal of tonsils and adenoids, without the after-treatment, not only does no good at all, but actually does harm.

When effective post-operative re-education is given, there is a very striking improvement in the child's general condition, though it may be difficult at times to effect much improvement in the actual form of the chest itself.

I venture to suggest that a very large number of the tonsil and adenoid operations now being performed upon children in such large numbers all over the country are rendered useless through failure to follow them up by appropriate respiratory exercises. I have long believed, and taught, that it should be a routine in every clinic, and indeed in every case of tonsils and adenoids, to provide the necessary after-treatment after every operation; and if this led to an inconvenient crowding of the clinics, it would be far better to restrict the number of operations than to omit the after-treatment in any single case.—I am, etc.,

London, W.1, March 12th. ALAN H. TODD.

THE TREATMENT OF FIBROSITIS.

SIR,—As an interested listener to the recent discussion on fibrositis at the Royal Society of Medicine (reported in the BRITISH MEDICAL JOURNAL of March 14th, pp. 509-12), may I endeavour to co-ordinate the facts upon which it appeared to me the best opinion agreed, with a view to clarifying our ideas on treatment?

The dual causation of fibrositis—infective and metabolic—was well stated by Dr. Edgecombe. Dr. Alison Glover, on behalf of the Ministry of Health, marshalled an array of facts showing the incidence of the disease in its various forms in the two sexes and at different periods of life, and calling attention to the practical importance of strain or traumatism and of chill in the chain of causation.

Malassimilation, defective elimination, exudation or deposit in the fibrous tissues—"tissues of least vitality" (Dr. Ackerley)—were admitted by all, but opinions differed widely as to whether the metabolic disorder is always secondary to streptococcal or other infection, or may be the primary cause of fibrositis, as of gout. Treatment will, of course, conform to one opinion or the other—that is, will be directed either to the removal of possible sources of infection or to relieving anabolic or katabolic disorders. The former is the ruling principle of treatment at present in England, and the latter in Continental countries. It was also generally agreed that the resistance of the body, which may easily be damaged by previous specific infections, is low in fibrositis, and ought to be raised. But no clear guidance was given as to how this can be achieved, beyond general hygienic precautions, such as improvement in housing conditions, the prevention of chills, and the provision of works baths and drying rooms.

Two principles of treatment were, however, mentioned that deserve greater emphasis than they have yet received. Sir W. Willcox states that skilled massage flushes the part

[1] BRITISH MEDICAL JOURNAL, October 11th, 1913.

with fresh antibodies. Others, like Dr. Ray and Dr. Sundell, regard the rheumatic subject as "predisposed to cold," and speak of the value of a "thermal atmosphere" in raising the temperature of the blood and restoring healthy muscular action. I may here interpolate that both these curative factors are combined in a well appointed manipulation bath, such as we used during the war. Heat is more pleasant and manipulation less painful when thus combined, and systematic local treatment tends, not only to dissipate fibrositis, but to improve the resistance of the tissues. Eliminative treatment may, I think, be regarded as a second line of defence. Dr. A. Ellis pointed out the failure of elimination at the age period when fibrositis is most prevalent. It is surprising, since the serious effect of circulating toxins is everywhere admitted, that systematic elimination is not more definitely advocated. Heat, combined with eliminative treatment, may produce the happiest effects, even in chronic and intractable cases, when precisely adapted to individual conditions.

The fibrositis or periarthritis in women at or about the climacteric, affecting a very numerous and important group of cases, was well described by Mr. McDonagh as "corresponding to gout." I have long ago[1] expressed the same conclusion, and the same belief as Mr. McDonagh's—that sulphur is of much value in these cases. Sulphur waters and baths and the colloidal preparations of sulphur are undoubtedly beneficial in many rheumatic disorders.—I am, etc.,

London, W.1, March 18th. R. FORTESCUE FOX.

INFECTIVITY OF SMALL-POX IN THE INCUBATION STAGE.

SIR,—With reference to the statement in Dr. Rolleston's book that "small-pox is infectious in all stages of the disease, even in the incubation period before any symptoms have appeared," I quite agree with Drs. Snell and Millard that small-pox is not infectious during the incubation period. I will go further and state emphatically that small-pox is not infectious even after the onset of the symptoms before the rash has appeared. It becomes infectious when the rash appears.

During the epidemic of 1901-2, I saw over 1,000 cases. I visited and kept all "contacts" under observation for sixteen days, and invariably found the rash appearing in secondary cases exactly fourteen days after the rash of the primary case had appeared. During that epidemic, and since, we have taken the "contacts" of isolated cases into our shelters and kept them under observation during the incubation period. During the epidemic six houses were used as shelters, and for several months we had from twenty to twenty-five families at these shelters. Our custom is to remove the patient to the small-pox hospital as soon as the rash appears and to take the family to one of the shelters. If another case occurs among these contacts we are certain that we have all the people who have been exposed to infection from the secondary case under observation. In no instance have I ever known a person to contract the disease earlier than twelve days after the rash had appeared in the previous case. As the incubation period of small-pox is generally twelve days and the rash appears on the fourteenth day, it is fairly plain that the disease is not infectious until the rash appears.

The following incident, which occurred in 1918, may be of interest as additional corroboration:

A girl, M. A., aged 15, worked in a tobacco factory up to February 25th, when she went home from work and was thought to be suffering from a cold. I saw her on March 2nd, when she had a small-pox rash, which, in my opinion, was about three days old. Another girl, S. H., worked in the same factory with M. A., and twelve days afterwards (March 9th) she was taken ill. The rash appeared on March 11th. She was taken ill at her work on the 8th and went home. She was in bed all day on the 9th, but late that night there was an air raid; she got out of bed and went to an air-raid shelter, where she remained for three hours. This air-raid shelter was partly underground, being 8 ft. 3 in. below the pavement level, and the ceiling was 3 ft. 6 in. above the pavement. The room measured 80 ft. by 60 ft. by 11 ft. 9 in., and the windows were boarded up. The number of people at the shelter during the three hours in question was not known, but in order to ascertain their names and addresses I arranged, with the assistance of the sanitary inspectors, to make a house-to-house visitation of the streets in the vicinity of the air-raid shelter on the following day. In this way we discovered 303 men, women, and children who took refuge in it during the whole of the time that the patient was present; 92 had never been vaccinated, and this number included 66 children under 10 years of age; 185 persons over 10 years of age had been vaccinated in infancy only.

If the patient, whose rash did not appear until the evening of the following day, had been in an infectious condition, we should have had an immediate spread of the epidemic. We had all the conditions favourable for it: (1) At least 283 persons not protected by vaccination, a very large proportion being unvaccinated children; (2) the overcrowded condition of an underground, unventilated room; (3) the physical and mental condition of the contacts; all the children had been taken from bed to the air-raid shelter. It is probable that others, besides the number mentioned above, took refuge in the air-raid shelter that night, but we had no other case of small-pox in the district where the patient had been at the shelter.

With regard to haemorrhagic small-pox, I believe the patient is infectious when the haemorrhages occur. It invariably proves fatal before the third day, and therefore before the rash appears.—I am, etc.,

Public Health Offices, Stepney, March 17th. D. L. THOMAS.

THE CATARRHAL CHILD.

SIR,—Some remarks made at the meeting of the Bristol Medico-Chirurgical Society reported in the JOURNAL of March 21st (p. 557) appear to call for comment.

Speaking on the subject of the "catarrhal child," Dr. Clarke states that the baby should live in the open air "even in a draught," and "even during the bath."

No one will dispute the value of fresh air, but does Dr. Clarke suggest that bathing babies in the open air in this country is a practical proposition for the average parent? And have draughts ever been proved to be beneficial? Most of us find them at least uncomfortable.

As to the rule that visitors to the infant should wear masks, the idea is pleasing from several points of view, but considerable moral courage must be required to inform enthusiastic callers that, while we are very pleased to see them we shall be obliged if they will assume their masks without delay.—I am, etc.,

London, E.15, March 21st. PHILIP R. KEMP.

TESTS FOR DRUNKENNESS.

SIR,—When I was appointed divisional surgeon to the Metropolitan Police I was requested to state that a person was or was not drunk when called upon to give an opinion. This I maintain is an absurdity. One might just as well state that a person is or is not anaesthetized. There are degrees of drunkenness, or alcoholism, just as there are of any other drug.

In reporting a case in the police books such terms as "suffering from effects of alcoholism," "has had some drink," "under the influence of alcohol," are clumsy and of little help to the lawyers.

I suggest that instead of making only two classes, drunk or not drunk, we formulate three classes of alcoholism—first degree, second degree, and third degree—and that these should be recognized as legal distinctions.

Al. 1.—Might include all such persons as had taken some alcohol, and were merry and bright as a result. Such persons would be quite fit to take care of themselves and control a motor car.

Al. 2.—Quarrelsome, flushed face, overfamiliar, talkative, and so forth. Unfit to drive a car.

Al. 3.—Obviously intoxicated and presenting no difficulty whatever other than differential diagnosis.

All the examining doctor would then have to do would be to classify the case and enter in the police book as follows: John Smith, Al. 1, 2, or 3, as the case might be. Penalties, capacities, etc., would all be under formula, so that no further statements would be necessary.—I am, etc.,

B. F. PENDRED, M.R.C.S., L.R.C.P.

Loughton, March 13th.

[1] The Gout in Women, *Proc. Brit. Balu. and Clim. Soc.*

NEED FOR A POST-GRADUATE SCHOOL IN LONDON.

SIR,—As discussions are now taking place on post-graduate facilities for foreigners and for doctors from the provinces, I think it opportune to suggest that something should be done for London men.

A friend in the country once told me that he envied me living near London for the opportunities of post-graduate study. It was therefore quite a disappointment to find that for the several thousand men in and near London nothing suitable is arranged.

Looking down the list issued by the Fellowship of Medicine I find . . . three weeks' course here, two weeks' there, seven guineas for this, many guineas for that. Now how can any doctor, not on a long holiday, give 9 a.m. to 6 p.m. every day, or feel inclined to pay eight guineas when he can only attend, say, two afternoons out of the two weeks' course?

I would like to see a London post-graduate association which would frame a syllabus especially for London men. One afternoon a week, say every Friday, a course of a concentrated four hours of teaching and practical demonstration, to be given at one of the hospitals. This could be varied to suit everyone; a typical afternoon would be: 2 to 3, surgical out-patients; 3 to 3.45, throats; tea; 4.15 to 5, laboratory; 5 to 6, medical cases. Mental disease, anatomy, electricity, etc., could be introduced.

I am sure many a London practitioner would then keep this precious afternoon free; it would be his hospital afternoon. Sometimes he would be too busy to attend—well, nothing is lost; he has his season ticket, so to speak, and better luck next week. To attract men from the fifty-mile radius there must be more than one lecture to make it worth his while coming; the hospital varying gives a varying geographical advantage; the teachers changing each week avoids the "one-note man" overdoing his favourite theme.

I commend the idea to the Fellowship of Medicine. I have admired its lists for a long time and envied those able to put in three weeks at the attractive courses, but I'm for the sea when my summer holiday is due!—I am, etc.,

London, N.W.6, March 24th. F. MELVILLE HARVEY.

Obituary.

J. McGREGOR-ROBERTSON, M.B., C.M., F.R.F.P.S.G.,
Glasgow.

BY the death, which occurred with startling suddenness on March 17th, of Dr. Joseph McGregor-Robertson, F.R.S.Ed., Glasgow has sustained the loss of an outstanding personality. He had been presiding at an address by Colonel L. W. Harrison (Ministry of Health) under the auspices of the National Council for Combating Venereal Diseases, of the Scottish Committee of which he was chairman, and at the conclusion of the lecture proposed a vote of thanks. Immediately afterwards he stepped off the platform on his way to the ante-room and dropped down dead.

Dr. McGregor-Robertson was a native of Glasgow, and was educated at the University; he graduated M.A. in 1876 and M.B., C.M. (with honours) in 1880. After a distinguished career he was appointed Muirhead demonstrator and lecturer in physiology, a post which he filled with conspicuous ability. Two textbooks which he published—*Physiological Physics* and an *Elementary Textbook of Human Physiology*—had a considerable vogue in their day.

General practice attracted him, and he settled in the West End of the city and very soon built up a large practice. Busy as he was, he still found time to maintain his interest in science. Members of the Representative Body who enjoyed his hospitality in 1922 will remember with pleasure the interesting hour they spent in his private laboratory and *x*-ray room.

Outside the sphere of his immediate practice he had many interests. Reference has been made to his connexion with the National Council for Combating Venereal Diseases. His work on behalf of Scottish nurses will long be remembered. Largely due to his energetic advocacy, the Scottish Nurses' Association (now the Scottish Nurses' Club) was founded, and is now a flourishing institution, providing a club and bedroom accommodation for fifty nurses, with an average number in residence of thirty. He was closely associated with the late Sir William Macewen in the organization and management of the Princess Louise Scottish Hospital for Limbless Sailors and Soldiers, and after Macewen's death much of the administrative work devolved upon him. When the Parish Council of Glasgow, after the war, decided to restore Stobhill Hospital to its function as a general hospital, he was appointed visiting physician and organizer of the medical service. He held very liberal views of the function of the Poor Law hospital, and his work in that connexion will be enduring. He became a Fellow of the Royal Faculty of Physicians and Surgeons in 1892, and was for some years an active member of the council of that body, as well as examiner in physiology.

The British Medical Association, of which he was for many years a member, is indebted to him for much good service. He had been a member of the council of the Glasgow and West of Scotland Branch, and in 1922-23 served on the special committee to inquire into the notification of venereal disease. He was elected to the Council in 1922, and served on the Scottish Committee from 1923. At the annual general meeting in Glasgow in 1922 he was a member of the executive and secretary of the Reception Committee, and showed very great interest in the success of the meeting. At the time of his death he was chairman and representative of the Glasgow North-Western Division. For a good many years—we cannot now exactly ascertain how many—he was the correspondent of the BRITISH MEDICAL JOURNAL in Glasgow.

Gifted with a trenchant and lucid style, his contributions to debate were always arresting, and his opinions always commanded respect. Absolute fearlessness was the dominant note of his character, and he possessed unyielding tenacity of purpose and consuming energy. A hard hitter in controversy, uncompromising where he believed a principle to be involved, he yet made many friends, who mourn his loss.

He leaves a widow and family; one son is in medical practice in Glasgow.

A. A. H. KNIGHT, M.D.EDIN.,
Keswick.

THE profession and a large circle of friends and old patients (who were also always his friends and he theirs) have suffered a severe loss in the death, at the age of 81, on March 5th, of Dr. A. A. H. Knight, one in whom uprightness of character, largeness of heart, together with a sound knowledge of his profession and intellectual gifts of no mean order, joined in producing an example of the highest type of medical practitioner; and if wealth is to be estimated by the amount of unselfish service ably rendered, or by a harvest of human trustfulness and affection, then surely one of the richest.

Alexander Angus Halley Knight was born on October 7th, 1843, in the parish of Chernside, Berwick, his father, the Rev. George Fulton Knight, being one of those who went out with Chalmers from the Established Church, subsequently becoming Free Church minister at East Wemyss. Educated at the Edinburgh High School and later at Edinburgh University, where, in 1865, he took the degree of M.D. and the diploma of L.R.C.S., after holding the appointment of house-surgeon in the Edinburgh Hospital for Sick Children he acted for a time as assistant to Dr. Rowland of Bootle, and in 1866 succeeded Dr. Rumney of Keswick, where he practised uninterruptedly for close on fifty years.

It was natural that a man of his calibre should make his personality felt among the community at large, and as a member of the old local board, founder and president of the local literary and scientific society, and also of the Derwent (Men's) Club, chairman of the Cottage Hospital House Committee, and as trustee or member of committee of various other charities, he gave unsparingly of his time and talents. His professional appointments included those

of medical officer to the Keswick Cottage Hospital, Poor Law medical officer, and public vaccinator, Post Office medical officer, and certifying factory surgeon. He was also one of the founders and at one time President of the Border Counties Branch of the British Medical Association.

After half a century's constant and active service he felt that the time had come for a less strenuous life, and amid universal regrets of patients and friends retired into private life at Bolton-le-Sands on the shores of Morecambe Bay. But the claims of the War Office were just then being strongly pressed. The younger men from his neighbourhood had joined the forces, and at the age of 73 he again got into harness and did yeoman service as medical officer in charge of the out-patient department of the Lancaster Infirmary. He had, however, for some years had warnings of cardiac incapacity, which later took the form of angina pectoris, and cut him off from many of his favourite activities, eventually leading to his death.

We laid him to rest on a brilliant day of sunshine, in view of the lake and hills which he knew and loved so well, and attended by a great company of every class and station, noticeable among whom were many country folk who had gathered from far and near to pay respect to their old friend and adviser, whom perhaps they recalled as a familiar figure riding his pony among their fells and dales in the days of their childhood.

J. R. B.

AUGUST v. WASSERMANN, M.D.,

Professor of Experimental Therapy and Immunology, Berlin.

THE death of Professor August von Wassermann, at the comparatively early age of 59, has added yet another to the long list of scientific men Germany has lost in recent years.

Wassermann was born at Bamberg, and studied at the Universities of Munich, Vienna, and Strasbourg; he took his degree in medicine at the last named university in 1899. Shortly afterwards he became an assistant to Dr. Koch at the Koch Institute for Infectious Diseases, Berlin. Ten years later he was made a professor in the medical faculty of the University of Berlin, and subsequently had charge of the university department of experimental therapy and serum research. In 1913 he was appointed director of the Kaiser Wilhelm Institute for Experimental Therapy at Dahlem near Berlin.

Although Wassermann is best known as the originator of the test which bears his name for the diagnosis of syphilis, this was the outcome of only a small part of his investigations in the field of immunity. In fact Wassermann was regarded by many as one of the most brilliant of the younger scientific workers in Germany, and was considered the most likely to carry on the brilliant Ehrlich school. But the war and now his untimely death have decided otherwise.

Of his earlier researches, perhaps his paper on the nature of tetanus toxin was the first to attract attention. In this investigation he showed that tetanus toxin had a powerful affinity for nervous tissue, and that the toxin was fixed and rendered inactive by an emulsion of brain. Then followed a series of articles on such subjects as haemolysins, bacteriolysins, endotoxins, and aggressins. He thus built up for himself a wide and accurate knowledge of the processes of immunity which enabled his alert and prepared mind to grasp the practical importance of these phenomena and apply them to the diagnosis of disease. Thus he was one of the first to employ the precipitin reaction for the differentiation of serums and suggest that the test was of medico-legal importance.

Again, Wassermann was one of the first to realize the importance of the discovery of the complement fixation reaction by Bordet and Gengou, and the spirochaete of syphilis by Schaudinn. For with his collaborators, Neisser and Bruck, he successfully demonstrated the value of Bordet's reaction in the diagnosis of syphilis. There is no doubt that the Wassermann reaction is one of the most important medical discoveries of our time, and it is safe to say that it brought about a revolution in the diagnosis and in the control of treatment. Only a few months after this discovery the writer of this article first met Professor Wassermann, and was struck by his genial personality and remarkable lucidity of expression which enabled him to demonstrate the most involved immunity reaction with great simplicity. The last occasion was at the International Congress of Medicine, when he gave a finished and striking oration.

His later researches were concerned with the perfecting of his test, its theory, and the interpretation of the results. A careful analysis of these in conjunction with his collaborators brought out many important points in the general pathology and treatment of syphilis. In this direction may be mentioned his insistence on the necessity for early treatment. He held that whenever possible it should be commenced before the Wassermann reaction was positive, a period which he termed pre-Wassermann. Then followed chemotherapeutic experiments into the cure of mouse carcinoma with salts of selenium, which aroused great interest at the time. More recently he had been working at tuberculosis and the serodiagnosis of cancer.

J. McI.

TWO VETERANS.

BY the death of Dr. ARTHUR OAKES on March 12th at his house in Edgbaston, Birmingham lost its oldest medical practitioner. He was 96 years of age, and had been in practice for more than seventy years. He was born at Eyam, in the Peak district, on October 4th, 1829; he became a student at Queen's College, Birmingham, and took the diploma of M.R.C.S.Eng. in 1853. He then became assistant to, and later partner of, Dr. Macpherson of Moor Street; eventually he succeeded to the practice, which he transferred to the Minories and subsequently to the Old Square, where he remained for nearly twenty-five years. Extensive alterations consequent upon the development of Corporation Street compelled him to move again, and he went to Steelhouse Lane and afterwards to Whittall Street, where he lived in the house now occupied by the secretary to the General Hospital. The property was bought some ten or twelve years ago by the governors of the hospital for the use of the staff, and Dr. Oakes was forced to move yet again. Even then he did not entirely relinquish practice, but took a share of rooms in Dale End (he himself living in Edgbaston), where he continued to see a few patients until the onset of his final illness a few weeks ago. Dr. Oakes was long a member of the British Medical Association, but resigned a few years ago when he was reducing the extent of his practice. He was a man of courteous habit and great personal charm; his practice was very extensive, and of the mixed type; he gave ungrudging service to the poor and needy. He was widely popular, and it was only when advancing age necessitated a curtailment of his practice that he materially reduced the number of his patients. He was a lover of horses, and it is said that long after all the other medical men had adopted the carriage and pair, Dr. Oakes was to be seen on horseback, riding up the pavement and knocking at the door by lifting the knocker with his riding-whip. A carriage he eventually did have, but never a motor car. In the old days of the Philosophical Society Dr. Oakes was one of its most active members; he took a great interest also in the work of the Midland Institute. For many years he was a member of the committee of the Medical Institute, and was its president in 1904-5. The funeral was attended by a large number of medical practitioners, many of the hospitals and medical institutions of the city being represented.

Dr. A. E. T. LONGHURST died, at the age of 93, on March 20th, at his residence in Hampshire, to which he had retired some years ago. He was the son of the Rev. John Longhurst, and was born at Kirkby Mallory, Leicestershire. He received his medical education at St. Bartholomew's Hospital, and obtained the diplomas of M.R.C.S. and L.S.A. in 1853. He at first settled at Loughborough, but on the outbreak of the Crimean war he went out, in October, 1854, to Constantinople as assistant staff surgeon in the army, and was appointed for duty at the barrack hospital at Scutari, the scene of the labours of Florence Nightingale. In the spring of 1855 he was appointed to

the 3rd Division of the army before Sevastopol, and for his services there received the medal and clasp and the Turkish medal. In August, 1855, he was invalided home, but served again in the Indian Mutiny as assistant surgeon to the 13th Light Infantry; he was mentioned in dispatches, and received the Toolsepore medal. On promotion to full surgeon he was appointed to the staff of General Sir Hugh Rose, Commander-in-Chief in India, and served in that capacity from 1861 to 1865. In 1869 he was gazetted to the 60th Rifles, and retired as surgeon major in 1876. He took the degree of M.D.St. Andrews in 1862, and after his retirement settled in Belgravia, where he became physician to St. Mary's Home. During his army service he was engaged in the museum of the Royal Victoria Hospital, Netley, and drew up reports on the pathological preparations. He was a member of the British Medical Association, and served on its Committee of Inebriates Legislation.

THE LATE DR. MARY STURGE.

IN the obituary notice published last week of Dr. Mary Sturge we inadvertently omitted to mention the services she rendered to the British Medical Association. She was a very active member, and helped it on many occasions, particularly in regard to the evidence before the Select Committee of the House of Commons on Patent Medicines. She was largely concerned in drafting the section of the evidence which dealt with medicated wines, and was the witness of the Association on that subject before the Committee.

Dr. SAMUEL BROWNE died at Esher on March 7th, aged 74. He was born at Belfast, the son of Dr. Samuel Browne, fleet surgeon R.N., afterwards Mayor of Belfast; he was educated at Belfast and Edinburgh, and graduated as M.D. and M.Ch. of the Queen's University, Ireland, in 1872. He served in the navy from 1872 to 1882, during which time he took part in the Ashanti campaign of 1873-4, being mentioned in dispatches and receiving the medal. In 1883 he took the D.P.H. of the Edinburgh College of Physicians. In 1884 he was appointed medical officer of Warwick Gaol; he retired from the prison service in 1901. From 1890 to 1910 he was medical officer of health for Leamington, and held a commission as medical officer of the 8th battalion of the Royal Warwickshire Regiment. He was also at one time medical officer of health for Kingston-on-Thames. He was a Fellow of the Royal Geographical Society.

Professor JAROSLAV HLAVA, director of the pathological institute at Prague University, and one of the most distinguished members of the medical profession in Czecho-Slovakia, has recently died. He was the first to describe the histology of Koplik's spots, the pustules of small-pox, the eruption of scarlet fever, and the blood picture in typhus.

Dr. JULES SOCQUET, a well known Paris criminologist and president of the French Society of Legal Medicine, and Dr. GIORGIO NICOLICH of Trieste, founder and president of the Italian Society of Urology, have recently died, each at the age of 73.

Professor JEAN ESCAT, a well known urologist attached to the medical school of Marseilles, has recently died of septicaemia following an injury to his finger during an operation.

Professor JULIUS HIRSCHBERG, the well known German ophthalmologist and founder of the *Zentralblatt für Augenheilkunde*, died recently at Berlin, at the age of 82.

Professor VAISI BEY, formerly dean and professor of legal medicine in the Constantinople Faculty of Medicine, has recently died.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE REGIUS CHAIR OF PHYSIC.

As briefly announced in the JOURNAL last week, the King has approved the appointment of Sir Humphry Davy Rolleston, Bt., K.C.B., P.R.C.P., to be Regius Professor of Physic in succession to the late Sir Clifford Allbutt, with whose name his is associated as joint editor of the second edition of the standard *System of Medicine*. Sir Humphry Rolleston is a former scholar and Fellow of St. John's College, and studied medicine at St. Bartholomew's Hospital. He graduated B.A.Cantab. in 1886, M.B., B.Ch. in 1888, M.A. in 1890, and proceeded M.D. in 1892. He is emeritus physician to St. George's Hospital, and has been President of the Royal College of Physicians of London for the past three years; he was appointed Physician in Ordinary to the King in 1923. From 1914 to 1919 he served as consulting physician, with the rank of rear-admiral, in the Royal Navy, and for his services in the war he was created C.B. in 1916 and K.C.B. in 1918. He was created a baronet last year. The many distinctions conferred on him by academic bodies at home and abroad include honorary doctorates of the Universities of Oxford, Durham, Glasgow, Padua, and Bordeaux. He has been a member of numerous Royal Commissions, departmental committees, consultative boards, and other public bodies. He is a past president of the Royal Society of Medicine and of the Röntgen Society, and for some years he has continued to give greatly valued assistance to the British Medical Association, as a member of its Science Committee, and of the Arrangements Committee for the scientific work of the Annual Meetings; he was President of the Section of Medicine in 1920.

The Regius Professorship of Physic, with the other four Regius chairs at Cambridge, was founded by Henry VIII in 1540. In nominating Sir Humphry Rolleston as the head of its great Medical School, the University, it is agreed on all hands, has chosen wisely and well.

UNIVERSITY OF LONDON.

THE following have been recognized as teachers of the University in the subjects and at the institutions indicated:

London Hospital Medical College.—Mr. William W. Woods (morbid histology).

Middlesex Hospital Medical School.—Dr. J. H. Douglas Webster (radiology).

Charing Cross Hospital Medical School.—Dr. E. D. D. Davis (oto-rhino-laryngology).

Applications for the University Chair of Biochemistry which it has been decided to institute at Middlesex Hospital Medical School must be received by the Academic Registrar at the University by April 23rd; the salary is £800 a year.

Mr. H. S. Souttar, C.B.E., M.Ch., has been appointed Examiner in Surgery for 1925, if required, and Mr. W. Girling Ball and Mr. E. C. Hughes have been appointed Associate Examiners in Surgery for 1925, to act if required.

The regulations for the second examination for medical degrees, Part II, for internal students, have been amended by the deletion of the words "which may include the recognition of the more important substances in the *British Pharmacopoeia*," in lines 3-5 on page 237 of the Red Book, 1924-25.

The Military Education Committee, in its sixteenth annual report to the Senate, records that Lieut.-Colonel A. M. H. Gray, C.B.E., M.D., has been awarded the Territorial Decoration for long and meritorious services of proved capacity in the Territorial Army.

UNIVERSITY OF LIVERPOOL.

Honorary Degrees.

THE Council and Senate of the University propose to confer, at a special congregation on June 5th, the honorary degree of LL.D. upon Sir Dyce Duckworth, Bt., M.D., consulting physician to St. Bartholomew's Hospital and Emeritus Treasurer of the Royal College of Physicians of London, and Sir Robert Jones, K.B.E., Ch.M., F.R.C.S., consulting orthopaedic surgeon to the Liverpool Royal Infirmary and director of orthopaedics at St. Thomas's Hospital, London.

The following candidates have been approved at the examinations indicated:

FINAL M.B.—*Part I:* H. W. Altschul, G. S. Clouston, R. F. Corlett, D. E. Davies, R. W. Eldridge, J. H. Gilchrist, J. Halton, E. Hulme, T. A. Jermy, C. Kaufman, J. C. McFarland, E. P. Moloney, J. Morgan, H. E. Pearson, D. E. Pritchard, Thirza Redman, Mary Hope Simpson, A. K. Wilson. *Part II:* M. A. E. Azzam, H. E. Barrow, W. Howard, J. Katz, G. W. Molyneux, Mary A. Silcock, J. Tarshish, W. L. Webb.

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—I. Davies, A. Gillies, A. J. Murray, J. R. Parry.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

D.P.H.—*Part II:* Hilda Pratt. *Part I:* E. R. Gilmore, Bridget Lineham, A. C. Newman.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part I:* W. G. Thomson.

UNIVERSITY OF LEEDS.

At a meeting of the University Council on March 18th resolutions were passed recording deep regret at the death of two of its honorary graduates, Sir Edward Thorpe and Sir Clifford Allbutt: Sir Edward Thorpe was one of the first three professors of the Yorkshire College of Science; Sir Clifford Allbutt, who was a life governor of the Yorkshire College and a life member of the University Court, gave distinguished services to the Leeds School of Medicine, of the staff of which he was a much valued member.

Dr. J. Gordon was appointed lecturer in bacteriology, in succession to Dr. Ross, resigned. Dr. Gordon graduated M.B., Ch.B. in 1918 and has been a demonstrator in the department of pathology and bacteriology for nearly six years.

UNIVERSITY OF DURHAM.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.CH.—*Materia Medica, Pharmacology, and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology:* R. Abrahams, H. Birk, Evelyn H. Bolt, Ethel Browell, B. A. Dormer, M. M. Macintyre.

UNIVERSITY OF GLASGOW.

The following candidates have been approved at the examinations indicated:

FOURTH M.B., CH.B.—*Medical Jurisprudence:* W. J. Barbour, J. Baxter, A. M. Brown, V. S. Cameron, A. Campbell, M. C. Douglas, J. Durie, C. R Gibson, H. R. Kidd, †D. P. Leiper, S. R. Lipchinsky, S. Lurie, A. MacArthur, J. L. Macaulay, J. A. M'Cluskie, W. J. M'Culley, C. J. M'Ghee, D. T. M'Gibbon, C. C. M'Kenzie, A. A. M'Millan, A. M. M'Murray, D. C. M. Macpherson, H. W. A. Marshall, *A. Mellick, V. Meyer, G. M. Muirhead, D. S. Murray, M. Naftalin, W. H. G. Neill, A. F. Nimmo, J. O'Hara, D. C. Orr, A. G. Shanks, J. L. Smith, C. H. Stewart, H. S. Strachan, D. Thomas, J. H. Thomson, †W. Whitelaw, Jeanie G. Campbell, Mary E. Devine, Elizabeth H. Livingston, Georgina A. M'Nicol, Margaret Mulvein, Vida J. M'F. Stark, Maggie B. Walker, Kathleen M. Warren. *Public Health:* J. G. Anderson, J. Baxter, A. M. Brown, A. Campbell, J. V. M. Davies, J. Durie, C. R. Gibson, H. R. Kidd, D. P. Leiper, S. R. Lipchinsky, S. Lurie, A. MacArthur, J. L. Macaulay, J. A. M'Cluskie, W. J. M'Culley, C. J. M'Ghee, C. C. M'Kenzie, A. A. M'Millan, A. M. M'Murray, D. C. M. Macpherson, H. W. A. Marshall, A. Mellick, V. Meyer, G. M. Muirhead, D. S. Murray, M. Naftalin, G. R. Taylor, D. Thomas, ‡J. H. Thomson, W. Whitelaw, Mary E. Devine, Elizabeth H. Livingstone, Georgina A. M'Nicol, Margaret Mulvein, Maggie B. Walker.

* Distinction in medical jurisprudence and public health.
† Distinction in medical jurisprudence.
‡ Distinction in public health.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

At the spring commencements in Hilary Term held on March 21st, the following degrees were conferred:

M.D.—M. W. Kaplan, J. W. Scharff.
M.CH.—D. de Bruijn.
M.A.O.—D. J. Malan.
M.B., B.CH., B.A.O.—W. H. Anderson, G. P. Bamford, J. E. Beatty, Rev. E. A. Bennet, H. Binney, L. C. Brough, J. Crawford, T. G. B. Crawford, R. T. Cronin, J. Cussen, C. J. du Plessis, G. W. Garde, G. F. Gillespie, R. A. Heatley, J. J. Horwich, R. J. G. Hyde, J. M. Johnston, P. N. H Labuschagne, J. L. Levingston, J. A. MacDonnell, J. G. Maguir, F. J. Marais, C. R. Moore, J. V. Morris, F. M. Purcell, W. A. Redmond, E. T. S. Rudd, I. Strasburg, H. W. Strong, E. J. Walsh, L. M. Whitsitt, R. W. Harte (*in absentiâ*).

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have passed in the subjects indicated:

SURGERY.—W. Bentley, N. E. Challenger, A. J. M. Davies, A. Kaplan, Y. N. Lal, T. K. Natesan, F. T. Ridley.
MEDICINE.—*A. H. Allam, T. K. Natesan, F. T. Ridley.
FORENSIC MEDICINE.—E. H. Bodrie, M. R. Burke, B. Horwitz, T. McD. Kellough, A. Mishriky, C. M. Moody, C. C. Po, F. T. Ridley, B. L. Steele.
MIDWIFERY.—I. H. Mackay, K. V. Mead, E. J. Newman, F. T. Ridley, R. J. Rutherford.

* Section II.

The diploma of the society has been granted to Messrs. A. H. Allam, W. Bentley, N. E. Challenger, A. J. M. Davies, Y. N. Lal, A. Mishriky, T. K. Natesan, C. C. Po, and F. T. Ridley.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

The annual dinner of the Royal Navy Medical Club will take place at the Trocadero Restaurant, Piccadilly Circus, W.1, on Thursday, April 16th, at 7.30 for 8 p.m. Members who wish to be present are asked to inform the Honorary Secretary, Royal Navy Medical Club, 68, Victoria Street, London, S.W.1, not later than seven clear days before that date.

DEATHS IN THE SERVICES.

Lieut.-Colonel Henry Thomas Brown, R.A.M.C.(ret.), died at Limerick on February 3rd, aged 81. He was the son of the late Dr. Henry Southwell Brown, was educated at Queen's College, Cork, and graduated M.D. in the Queen's University, Ireland, in 1865; he took the L.R.C.S.I. in the same year. He entered the army as assistant surgeon on March 31st, 1866, became brigade-surgeon lieutenant-colonel in 1892, and retired in 1896. As a regimental medical officer he served in the Ceylon Rifle regiment and in the 59th Foot, now the 2nd battalion of the East Surrey regiment. He served in the Ashanti campaign of 1873-74, under Sir Garnet (afterwards Lord) Wolseley, receiving the medal.

Brigade-Surgeon Frederick George Constant, Bengal Medical Service (ret.), died at Eastbourne on February 19th, aged 90. He was the son of John Constant, 5th Dragoon Guards, and, after taking the diplomas of M.R.C.S. and L.S.A. in 1856, entered the I.M.S. as assistant surgeon in 1859, became surgeon major in 1873, and retired with a step of honorary rank in 1882. He served in the Abyssinian war in 1867-68.

Surgeon Major Edward Colson, Bombay Medical Service (ret.), died at Southsea on March 3rd, aged 79. He was the son of the Rev. Charles Colson of Layston, Hereford, was educated at Guy's, and took the diplomas of M.R.C.S. and L.S.A. in 1868. He entered the I.M.S. as assistant surgeon in 1869, became surgeon major after twelve years' service, and retired in 1889.

Surgeon Captain John Christopher Ferguson, R.N.(ret.), died at Mentone on February 14th. He was educated at Trinity College, Dublin, where he graduated M.B. and Ch.B. in 1886. Soon afterwards he entered the navy, became fleet surgeon in 1902, and retired as surgeon captain in 1918. He served throughout the late war. He had qualified as interpreter in Hindustani in 1903, and in French in 1907.

Medical News.

LAST week's return showed a considerable decrease in the number of deaths from influenza in the great towns of England and Wales from 361 to 283. Only three cities other than London (where the deaths decreased from 59 to 36) had 10 or more deaths—namely, Birmingham (19), Liverpool (12), Manchester (15). The notifications of pneumonia for England and Wales are also decreasing (from 1,441 to 1,395). In some parts of the country, however, pneumonia is still increasing—for example, in the North Midlands; and in Manchester the deaths from influenza were more numerous than in the previous week.

THE eleventh annual conference of the National Association for the Prevention of Tuberculosis will be held at the Royal Society of Medicine on July 6th and 7th. Professor Pirquet of Vienna will introduce the discussion on tuberculosis in childhood; Professor Holger Moellgaard of Copenhagen and Professor Knud Faber of Copenhagen will discuss the treatment of tuberculosis by "sanocrysin." It is announced that the Minister of Health is prepared to sanction the payment of the reasonable expenses of three delegates from local authorities. The fee for the conference is 1 guinea, and a copy of the report of the proceedings will be supplied. Further particulars may be obtained from the secretary of the association, Miss F. Stickland, 20, Hanover Square, W.1.

THE Fellowship of Medicine announces that the discussion on post-graduate study in London (see p. 613) will be resumed at the house of the Royal Society of Medicine on April 8th, at 5 p.m. Sir Arbuthnot Lane will again preside, and it is hoped that many members of the medical profession will attend and give their views. On March 30th Mr. Ernest Clarke will lecture on myopia, its diagnosis and treatment, and on April 1st Dr. Robert Knox will give a lantern demonstration of the use of x rays in the diagnosis of lesions in the right quadrant of the abdomen. Each lecture will be given at 5.30 p.m. in the West Lecture Hall. Three courses, each lasting a fortnight, will commence on April 20th. An intensive course in medicine, surgery, and the specialties, will be held at the Hampstead General Hospital, a course in diseases of children at the Queen's Hospital, Hackney Road, E.2, and a course in proctology at St. Mark's Hospital for the Rectum. In May there will be courses in dermatology; diseases of infants, and of the nose, throat, and ear; and in psychological medicine. Copies of the syllabus of these courses may be obtained from the Secretary to the Fellowship of Medicine, No. 1, Wimpole Street, W.1.

A COURSE in parasitology will be held in the Tropical Division of the London School of Hygiene and Tropical Medicine from April 12th to June 25th. There will be three parts: entomology (Colonel A. Alcock, F.R.S.), helminthology (Professor R. T. Leiper, F.R.S.), protozoology (Dr. J. G. Thomson). The course is intended for students taking the first part of the D.P.H., but there may be room for a few others. The fee is two guineas. Inquiries should be addressed to the Director, care of the Institute of Historical Research, Malet Street, W.C.1.

A PORTRAIT of Dr. G. Reinhardt Anderson, M.B.E., Mayor of Southport, was unveiled in the Southport Infirmary on March 18th, in recognition of his work as a member for twenty-eight years of the honorary medical staff and for eight years chairman of the medical board.

THE next social evening of the Royal Society of Medicine will be held at 1, Wimpole Street, W.1, on Monday, May 4th. The president, Sir StClair Thomson, will receive the guests at 8.30 p.m., and at 9.30 Dr. Robert Hutchison will give an address on Dr. Samuel Johnson and medicine, which will be illustrated with eighteenth century portraits.

DR. G. LEVEN will deliver a course of four lectures on the treatment of aerophagy, obesity, and leanness at the Hôtel Dieu in Paris on May 7th, 14th, 21st, and 28th.

A COMPLETE course of French study will be held at the Sorbonne, Paris, during the summer. The first part of the course, extending from July 11th to August 9th, consists of a preparatory course each morning, including phonetics; two hours' practical French reading, grammar, and conversation; in the afternoons lectures on the history of France will alternate with excursions in Paris. From August 9th to 23rd a more advanced course will be given by the leading professors of the Sorbonne and the Faculty of Law, who will deal in thirty-six morning lectures with the chief literary, political, and economic questions of France in the present day. The afternoons will be devoted to excursions in Paris. At each week-end during the course visits will be paid to towns of historical or artistic interest, and from August 23rd to 31st a journey in small groups, under the guidance of the professors, will be made to one or other of the eastern, southern, or western parts of France. The director of the course is M. Henri Goy, Directeur du Bureau des Renseignements Scientifiques, Sorbonne, Paris, to whom all communications should be addressed.

AN international congress of physiotherapy—the first since the war—will be held at Leningrad from May 23rd to 27th, when the following subjects will be discussed: (1) light therapy, introduced by Professor S. A. Brunstein; (2) Roentgen therapy, introduced by Professor A. K. Jakovsky; (3) ionotherapy, introduced by Professor S. B. Wermel; (4) physical treatment of tuberculosis, introduced by Professor N. M. Roetnitzky (pulmonary tuberculosis) and Dr. F. G. Kornet (surgical tuberculosis); (5) physiotherapy of motor disturbances, introduced by Professor A. L. Polen; (6) physiotherapy of endocrine disorders, introduced by Professor R. C. Metzernitzky. An exhibition of instruments connected with physiotherapy will be held during the congress.

THE sixth Italian Congress of Radiology will be held at Trieste from May 7th to 10th inclusive. Professor Pasquale Tandoia of Naples will deal with the radiology of the biliary system, Professor Giacomo Pesci of Genoa with the radiology of pleural diseases, and Professor Eugenio Milani of Rome with radiotherapy of the endocrine system. May 10th (Sunday) will be devoted to an excursion to the grotto of Postumia. The subscription for non-members of the Societa Italiana Radiologia Medica is 20 lira, and relatives of those attending may obtain the privilege of reduced railway fares on payment of 10 lira. Applications should be addressed before March 30th to the Congress President, Dr. Massimiliano Gortan, Ospedale Civico Regina Elena, Trieste.

AN International Conference on the Use of Esperanto in Pure and Applied Sciences will be held in Paris from May 14th to 16th inclusive. Inquiries should be addressed to Mr. F. E. Wadham, 19, Grandison Road, London, S.W.11.

THE annual meeting of the Cremation Society of England will be held in the Adam Hall at 12, Stratford Place, W.1, on Wednesday, April 8th, at 3 o'clock. The council's report, to be presented to the meeting, congratulates the society and those interested in its work on the success which has attended its efforts. During the year under review, notwithstanding the satisfactory state of the national health, the number of cremations carried out in Great Britain was increased by 404, or 20 per cent., the actual number having been 2,390, against 1,985 in the previous year. Of this total the four crematoriums in London accounted for 1,429. The accounts and balance sheet show a highly satisfactory financial position. Membership has also greatly increased during the past year.

ON his retirement from being medical officer to the Brighton Board of Guardians after forty-two years' service Dr. Douglas M. Ross has been presented with a framed illuminated address, subscribed for by members of the board, in recognition of the zeal and devotion with which he has discharged his duties.

ON the promotion of Sir A. Symonds, K.C.B., Second Secretary, to be Secretary to the Board of Education, Mr. E. R. Forber, C.B., C.B.E., has been appointed Deputy Secretary to the Ministry of Health, and Mr. L. G. Brock, C.B., and Mr. I. G. Gibbon, C.B.E., Principal Assistant Secretaries.

A DONATION of £10,000 has been given by Miss Margaret Clarke of Glasgow towards the building of a convalescent home for the Glasgow Royal Infirmary in memory of her father, Dr. Samuel Clarke, who was well known in Glasgow sixty years ago.

THE current issue of the quarterly *Bulletin of the International Union against Tuberculosis* contains a detailed account of the fourth International Tuberculosis Conference, held at Lausanne last August, with a report of the administrative session and a summary of the scientific discussions. Sir Robert Philip contributes an article on anticipatory detuberculization, and A. K. Krause and H. S. Willis describe experiments showing that the rate of dissemination of virulent tubercle bacilli in normal guinea-pigs is far more rapid than in animals that have been immunized, the proportions being from three to four days in the former case, as compared with seven in the latter.

THE forty-ninth annual meeting of the German Society of Surgery will be held in Berlin from April 15th to 18th. The programme appears in the *Zentralblatt für Chirurgie* of March 14th.

A SPECIAL institute has been established for the treatment of scabies at Leningrad, where the methods employed are those in use at the Hôpital St. Louis, Paris.

THE celebration of the centenary of the birth of Hippolyte Duprat, a French naval medical officer who forsook medicine for poetry and music, is being organized at Toulon.

THE February issue of the *Deutsche Zeitschrift für Chirurgie* contains a portrait of the late Professor Trendelenburg, and a memoir of him by the editor, Professor Sauerbruch of Munich.

THE eleventh centenary of the University of Pavia will be celebrated from May 20th to 22nd.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.* Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proof.

ALL communications with reference to advertisements as well as orders for copies of the JOURNAL should be addressed to the Financial Secretary and Business Manager, 429, Strand, London, W.C.2. Attention to this request will avoid delay. Communications with reference to editorial business should be addressed to the Editor, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.2.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—not necessarily for publication.

Communications intended for the current issue should be posted so as to arrive by the first post on Monday or at latest be received not later than Tuesday morning.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

SODIUM NUCLEINATE IN PNEUMONIA.

DR. F. M. GARDNER-MEDWIN (Angorfa, St. Asaph, North Wales) writes: May I appeal to all practitioners who have used intramuscular injections of sodium nucleinate in the treatment for pneumonia, as set out in my paper in the BRITISH MEDICAL JOURNAL, July 12th, 1924, to let me know the results of their treatment in statistical form—stating whether the crisis was precipitated within about forty-eight hours of the injection? Any such information would be gratefully received by me and permission to use the statistics in any way I choose would be appreciated. The possession of a weapon of precision such as this in a disease where hitherto expectant treatment has been employed is so important, in my opinion, that the only justification for neglecting to use it is failure to obtain results or refusal to believe the results obtained by others.

TREATMENT OF ASTHMA.

IN reply to "H. C.'s" question about asthma (March 7th, p. 488), a correspondent informs us that he has found elbon ciba to give relief in many long-standing cases. The amount he gives is 30 to 60 grains a day, according to the severity of the symptoms. A note on elbon ciba was published in our columns of June 7th, 1924 (p. 1009). It is a combination of cinnamic acid and oxyphenylurea, and was introduced as an antipyretic and disinfectant of low toxicity.

INCOME TAX.

To a firm of chartered accountants acting for a medical man in Scotland we tender the following advice:

Defence Unions.—The best course is for our correspondents to refer to the Medical and Dental Defence Union of Scotland, as that body might wish to consider the question of taking up with the Board of Inland Revenue the point that it be admitted to the arrangement which applies to one or two kindred bodies.

Accident and Sickness Premiums.—It seems clear that there is no legal claim to deduct sums expended as premiums on accident or sickness policies. Rule 3 (*a*) of Cases I and II, Schedule D, provides that "any expenses not being money wholly and exclusively laid out or expended for the purpose of the trade or profession" shall not be deducted for income-tax purposes. In commenting on this rule in Strong *v.* Woodifield, [1905] A.C. 453, Lord Davey said: "It is not enough that the disbursement is made in the course of or is connected with the trade, or is made out of the profits of the trade. It must be made for the purpose of earning the profits." That dictum is, we think, pertinent. The premiums in question are paid not "for the purpose of earning the assessable profits," but to provide receipts, which will *not* be assessable, when the taxable income is reduced by the happening of the contemplated contingencies. There is one other point worth mentioning. The attitude of the Revenue authorities at present is, we understand, that while they do not consider that a legal practitioner has a legal title to an allowance for the sums paid to a locumtenent during illness, they raise no objection to such deductions being claimed and allowed. This probably meets the equities of the situation fairly well. The position of the practitioner would therefore seem to be: (*a*) he cannot deduct the premiums on his accident, etc., policy; but (*b*) he does not pay tax on any benefits received under the policy; and (*c*) he is as a matter of practice allowed to deduct his special expenditure in providing a locumtenent during illness, etc.

LETTERS, NOTES, ETC.

A DISCLAIMER.

DR. HECTOR MUNRO (London, W.1) has written to us disclaiming responsibility for the recent publication in the lay press of an alleged interview with him. We have received a communication also from the journalist concerned, who writes: "This matter was referred to in an informal conversation I had with Dr. Munro. I, as a journalist, made use of the information he gave me, and by mistake, and without his authority, mentioned his name."

HERPES ZOSTER AND VARICELLA.

WE have received a number of further communications on this subject.

Dr. J. M. COWIE (M.O.H. Burton-on-Trent) writes: The many cases recorded of the apparent connexion between herpes zoster and varicella are of much interest, and some cases equally important are also known to me, but I have seen so far no record of any statistical investigation of this subject. Chicken-pox has been a notifiable disease in this borough since November, 1922, and owing to the proximity of small-pox and the likelihood of its introduction into the town every case of chicken-pox has been investigated by the medical officer of health or the assistant medical officer of health. At the same time careful inquiries were made as to the previous occurrence in the household of cases of herpes zoster. During the period of just over two years ending December 31st, 1924, 813 cases of chicken-pox were notified in 559 families, and among these cases the following histories of previous herpes zoster in the household were obtained:

1. Male, aged 11. Rash November 19th, 1922. Visited November 21st. Mother had just recovered from herpes zoster.
2. Female, aged 2½. Rash December 8th, 1922. Visited December 23rd. Grandmother had herpes zoster starting four weeks earlier.
3. Male, aged 2. Rash November 30th, 1923. Visited December 3rd. Brother had shingles one month before.
4. Female, aged 10. Rash January 12th, 1924. Visited January 16th. Brother had shingles just before Christmas.
5. Male, aged 4. Rash September 8th, 1924. Visited September 10th. Mother had shingles about fourteen days before.
6. Male, aged 5. Rash November 24th, 1924. Visited December 1st. Mother had been in bed with herpes zoster for three weeks. Patient slept in same bed.
7. Female, aged 3. Rash July 18th, 1924. Visited July 21st. Elder sister developed shingles on June 6th.
8. Male, aged 6. Rash September 7th, 1924. Visited September 10th. Grandfather had shingles one month before.
9. Male, aged 1½. Rash November 3rd, 1924. Visited November 7th. Mother had herpes zoster two weeks before.

The cases with a history of previous herpes zoster in the home, therefore, numbered 9, which gives a proportion of 1.1 per cent. of cases and 1.6 per cent. of families. No inquiries were made as to any subsequent cases of shingles occurring in these houses. So far as this investigation goes, the frequency of the relationship of these two diseases hardly allows any conclusion to be come to other than that the connexion is purely casual.

Dr. J. LESLIE ORR (Lochmaben) writes: I desire to record another instance where these two diseases occurred together and where some definite relationship is strongly suggested. A female patient developed herpes zoster supraorbitalis about the end of January last. A fortnight later her daughter, aged about 20, developed chicken-pox. On this occasion one or two features which, mentioned by Dr. Ritchie (February 14th, p. 305), were also manifest—namely, (1) there were no other cases of chicken-pox occurring in the neighbourhood, and (2) the fourteen days' interval between the onset of the two diseases. Further reference to these conditions is made by Dr. R. C. T. Evans (March 14th, p. 508). Now chicken-pox is generally understood to be a disease of childhood and most liable to occur between the second and sixth years; also, adults who have not had the disease in childhood are very liable to be attacked. It would certainly be interesting to ascertain if chicken-pox associated with herpes zoster occurred only in people who had not suffered from the former disease. Might I suggest that this may account for the small number of cases recorded? If this suggestion cannot be borne out, then I think that the coincidence of the two diseases is thought to be infrequent simply because many are not aware of any possible relationship, and failure of others to record cases when they do occur. It is also possible that many cases of chicken-pox associated with herpes zoster escape notice owing to the very mild nature of the attack of the former ailment. This is the first occasion on which I have noticed the two diseases in the same family and at the same time.

Dr. A. GORDON WILSON (Penistone, Sheffield) writes: May I add another observation to those already recorded supporting the hypothesis that varicella can be contracted by contact with a sufferer from herpes? On January 30th I saw a child, aged 4, suffering from chicken-pox, the spots being then two to three days old. There was no other case of varicella in the vicinity, but the mother told me the child had been away from home and had only returned fourteen days before. On seeing the child again the parents asked me various questions about the "germ" of chicken-pox, and I mentioned that there was a theory that the virus of varicella and of "shingles" were identical. They said, "Oh, that explains it," and went on to say that they were wrong about the date of the child's return, which was on January 9th, not 16th, but that on January 16th a neighbour had called in for an hour, complained of feeling very ill, had visited the doctor, and next day was found to have "shingles." I found on inquiry she had had a severe attack of herpes of the fifth nerve.

Dr. E. C. K. KENDERDINE (Coventry) writes: On January 23rd, 1925, Miss A— J—, aged 19, developed intercostal herpes zoster. On February 9th her younger sister developed typical varicella. She was 4 years old, and we could not trace contact with other varicella patients.

Dr. GEORGE PERNET (London, W.1) writes: With reference to Dr. R. C. T. Evans's case of "Concurrent herpes zoster and varicella" (March 14th, p. 508), the condition described would, dermatologically speaking, come into the category of generalized herpes zoster, details of which will be found in textbooks of skin diseases. I published an instance of such in a man aged 80, very similar to Dr. Evans's case, in 1914 (*Brit. Journ. Derm.*, xxvi, p. 399).

DIPHTHERIA IN THE AGED.

DR. J. OWEN REID (Lochcarron, Ross-shire), with reference to Dr. Muir's memorandum (March 21st, p. 552) on a case of diphtheria at the age of 72, writes: I have recently attended two women, aged 69 and 73, suffering from diphtheria. In both cases diagnosis was confirmed by bacteriological examination. The first case died from heart failure on the fifth day of illness, but the lady of 73, who has now been ill for ten days, is doing very well, and will, I hope, make a complete recovery. These cases lived many miles apart, were the only cases in the district at the time, and, curiously enough, both were cripples.

Dr. LEWIS GRANT (Neston, Cheshire) sends notes of a case in which a lady showed signs of typical membranous diphtheria in 1910 (confirmed by bacteriological examination). "She developed post-diphtheritic paralysis of the palate, but this cleared up. At the time she was in her 80th year, and is now hale and hearty in her 95th year, her birthday being next July. She lives with her youngest sister, who is now in her 93rd year."

"PRACTICAL BIOCHEMISTRY."

DRS. W. A. OSBORNE and W. L. YOUNG (University of Melbourne) write: It may appear ungrateful, in view of your appreciative review of our book, *Elementary Practical Biochemistry*, in your issue of November 15th, 1924, to reply to some of the criticisms, but a misunderstanding has arisen which is easily rectified. Your review gives a list of most important biochemical procedures and applications which are omitted from the volume, such as quantitative estimation of sugar in blood, the use of the polarimeter and colorimeter, analysis of the faeces, and many more. There was a time when reviewers were charged with reading the preface only; in this instance the process has been reversed, for a perusal of our preface would have informed your reviewer that the book has two companion volumes in process of preparation—one devoted to quantitative and advanced methods and the other to clinical applications.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *127*.